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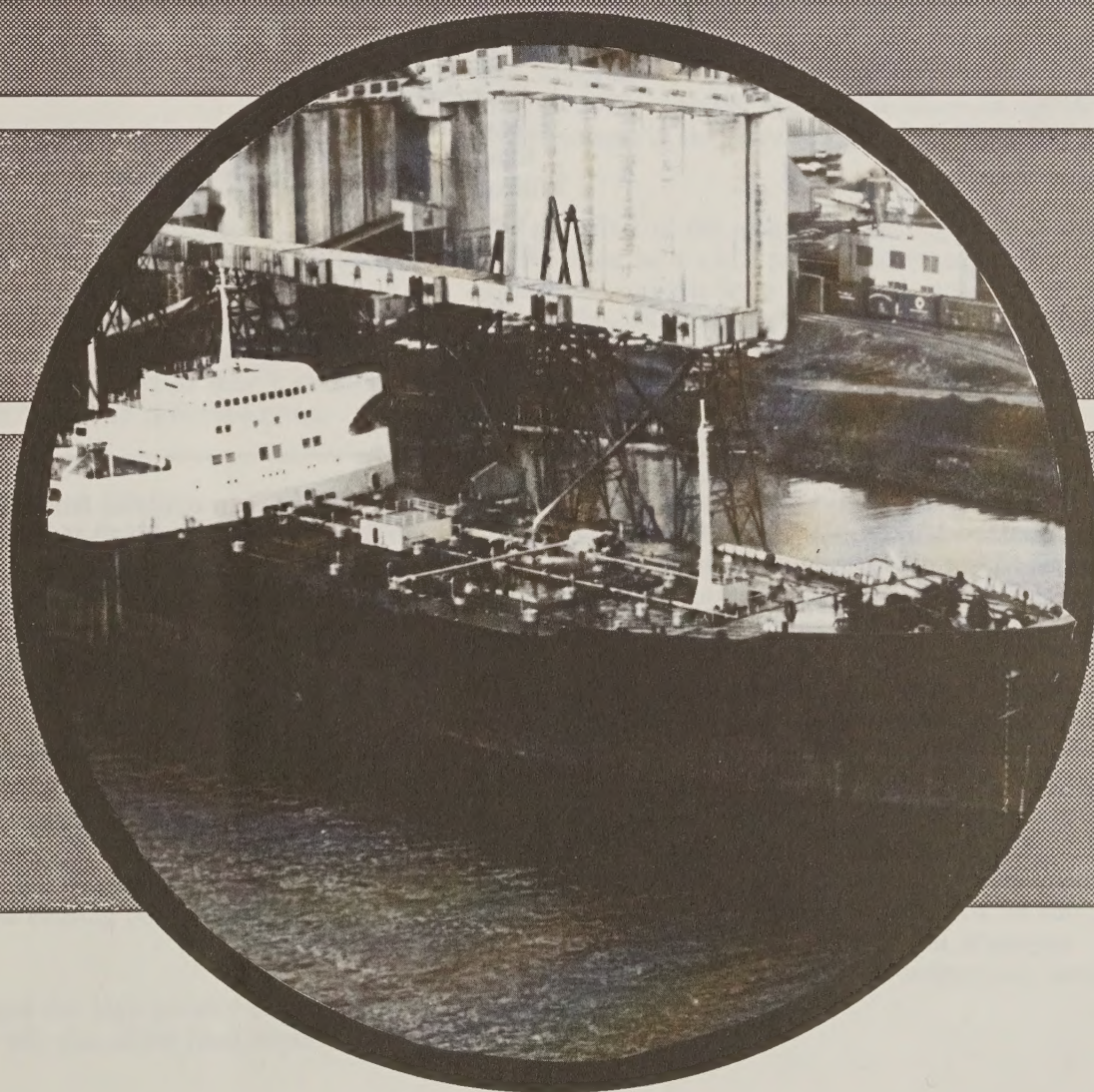
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USSR

Agriculture and Trade Report

Situation and Outlook Series

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Report Coordinator
Kathryn Zeimetz

Contributors
Edward C. Cook
Kenneth Gray
William M. Liefert
Yuri Markish
Kathryn Zeimetz

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Summary

The changes taking place in the USSR have reached a critical point. In the past year, the USSR has changed producer and consumer prices throughout the economy. Republics and local areas now increasingly pursue independent policies, trying to gain control of economic decisionmaking, including for foreign trade. The national Government is less and less able to coordinate fiscal and monetary policies. The disintegration of the Council for Mutual Economic Assistance and the availability of Western exporters' credit programs will affect the USSR's sources of agricultural imports and its terms of trade. As a result of these changes, forecasting Soviet agricultural production, consumption, and trade will be more difficult in 1991 than at any time in the last decade.

Farm production and interregional food shipments will likely decline further in 1991 despite higher average producer prices, fewer price zones, and improved relative prices. Increased input prices and disrupted supplies, aversion to holding monetary assets, and Government steps to support inefficient farms will blunt incentive and efficiency gains.

Traditional interests have reasserted control of agricultural policy. Their solutions are based on increasing the flow of resources to farms rather than changing property or financial relationships to improve resource use. Low quality inputs, inefficient allocation of resources among farms, and weak incentives for productive on-farm use continue to limit the production response to additional resources. In January 1991, the 40,000 new private farms controlled less than 1 percent of cropland. The 50,000 State and collective farms controlled 97 percent.

The publicized shortages in the last year resulted chiefly from stimulation of demand through price and income policies. With the decline in central distribution and reduced acceptance of money as a means of exchange, hoarding and bartering by individuals, firms, and regions increased.

More than doubling prices for meat, bread, and most other foods in April 1991 should cut excess demand for most foods and also lower consumer food subsidies. The decrease in quantity demanded also will help offset production declines. However, Government programs to compensate consumers for price increases will partly counter the decline in purchasing power caused by the higher prices.

Soviet export earnings and the high priority placed on nonagricultural imports will also affect food imports. At

midyear 1991, the central Government still controls major hard currency exports. It still possesses the bulk of hard currency earnings. Such control limits individual republics' ability to finance agricultural imports.

The Soviets have put higher priority on nonfood imports in the last several years. The \$16 billion increase in nonagricultural imports in 1988 and 1989 largely explains why the USSR went from an \$11.5 billion trade surplus entering 1988 to a more than \$5 billion deficit entering 1990. Soviet hard currency grain imports in 1990 accounted for about 10 percent of total hard currency imports, down from an average of 20 percent in 1980-85. Agriculture's share of total hard currency imports in 1990 was perhaps 20-25 percent, well below the peak of 42 percent in 1981.

The USSR increased machinery and equipment imports by \$6.5 billion in 1990. None of the increase was from the United States. The USSR also raised imports of a variety of nonmedicine and nonfood consumer goods. The Soviet agricultural import bill in 1990 was about the same as 1989. The bill would have fallen except for a large increase in the already inflated Cuban sugar prices.

The net effect of the many changes underway in the USSR might be a 15-20 percent decrease in 1991 agricultural imports from 1990's estimated \$19 billion. The decline will be larger if the revaluation of Soviet bloc trade from artificially inflated prices to world prices is fully accomplished.

The USSR reform plans, entering summer 1991, still have not set a framework for a breakthrough in economic performance. The plans proclaim the commitment to a market-based economy. However, they delay, or in some cases avoid altogether, the measures needed for change. The USSR remains without an adequate blueprint for invigorating the Soviet economy.

The chance of repayment of long-term loans depends upon whether later proposals provide a framework for a coherent economic system for the Union and individual republics. Payment performance also depends on which organizations in the country are responsible for payment, and whether they have access to resources. The USSR has great reserves to sustain its economy as it reforms, but the reform process will be complicated for this large, diverse society. This issue of control of resources involves the Union, republics, local authorities, firms, and individuals.

Economic Slide Accelerating

The Soviet economy is entering a potentially large contraction in 1991. Negative trends continued to build during 1990 and into this year. Gross domestic product has declined at an increasing rate since spring quarter 1990 and excessive growth in the money supply continues--as evidenced by wage and collective-farm market price trends. Development of a Government program for moving to a market economy, which seemed to be gaining momentum last summer, has been almost halted. The process of introducing market prices or privatization of State assets now appears more problematic and uncertain. For the time being, the USSR is precariously positioned with a partially dismantled administrative control system, but with markets that do not yet effectively determine economic activity. In recent years enterprises have received greater autonomy over their operations. But with economic reform now stalled, the proper incentives and mechanisms are not yet in place to improve enterprise interactions. Enterprises and entire regions are increasingly reluctant to conduct trade in rubles at unattractively low state-set prices. The result has been a fraying of inter-enterprise linkages and interregional trade, with negative consequences for economic growth. The initiative for adoption of market prices now appears to be coming from the grass roots level as buyers and sellers increasingly use negotiated prices to conduct transactions.

For 1991, the Government has instructed enterprises to maintain relations with one another at 1990 levels, an attempt to stabilize worsening imbalances in the economy. If the economic contraction continues to accelerate in 1991, the Government is expected to move toward reasserting administrative control. With most economists associated with market reform now out of the Government, a reassertion of centralized control is more likely. The possibility of an economic recovery through recentralization is highly problematic at best.

Economic Performance in 1990

The Soviet economy moved into a recession in 1990. Official preliminary statistics show gross domestic product (GDP) down by 2 percent and net material product (NMP) down by 4 percent (table 1). The decline in both of these measures accelerated during the course of the year. Preliminary measures for industry, agriculture, and transportation are all negative. The influence of inflation is probably not fully captured in the official data, particularly for GDP and NMP.

Declines in these aggregate measures do not necessarily reflect a worsening of the economic situation. Rationalization of the Soviet economy could result in a reduction in aggregate measures, as wasteful economic activity is eliminated. One could clearly anticipate this

with rationalization of the transportation sector or elimination of producer and consumer goods which serve little if any useful purpose. There is some evidence of such restructuring taking place in industry. While overall industrial production declined by 1.2 percent, production in consumer goods industries increased by 4.4 percent. Most of the increase in consumer goods production was due to increases in consumer durables and vodka. Production of food commodities increased by less than one percent, and clothing and textile goods production declined.

Overall there is not enough evidence to suggest that the decline in the GDP and NMP figures does not reflect a real decline in economic welfare. In fact, the official estimates probably understate the decline in economic welfare, because of worsening distribution problems for goods and services (queuing for and uncertainties about obtaining goods and services).

The State budget deficit reportedly declined in 1990 to 58.1 billion rubles, equal to about 6 percent of GDP (table 2). The decline was made possible by a

Table 1--Economic performance indicators, USSR

Category	1988	1989	1990
	Percent		
Gross domestic product	5.5	3.0	-2.0
Net material product	4.4	2.4	-4.0
(national income produced)			
Industry	3.9	1.7	-1.2
Consumer goods	5.4	4.9	4.4
Producer goods	3.4	0.6	-3.2
Agriculture 1/	1.7	1.3	-2.3
Transport 2/	1.3	-1.9	-5.9

1/ Gross production. 2/ Volume of freight.
Sources: *Narodnoe khozyaistvo v 1988 and 1989*, and *Ekonomika i zhizn'*, No.5, 1991.

Table 2--State budget deficit and share of GDP, USSR

Year	Budget			Deficit as share of GDP
	Revenue	Expenditures	Deficit	
	-----Billion rubles-----			Percent
1985	372.6	386.5	13.9	1.8
1986	371.6	417.1	45.5	5.7
1987	378.4	430.9	52.5	6.4
1988	378.9	459.5	80.6	9.2
1989	401.9	482.6	80.7	8.7
1990	452	510.1	58.1	6.2

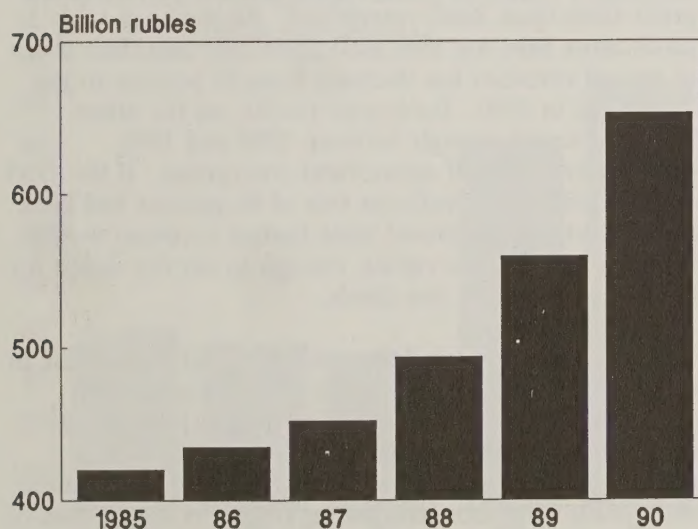
Sources: *Narodnoe khozyaistvo*, various years and *Ekonomika i zhizn'*, No. 5 (1991).

surprisingly large increase in budget revenues, 50.1 billion rubles. What makes the reduced budget deficit suspect is the fact that revenues from three major sources, taxes on sales, profits, and income--that account for two-thirds of Soviet State budget revenue--increased by only about 15 billion rubles. Other important revenue sources are contributions to social insurance funds and revenue from foreign trade. Both of these also increased, but probably not enough to explain the total budget revenue increase. Soviet accounting methodology includes Government bond sales as revenue. The interest rates on such bonds were increased significantly in 1990. It may be the case that a jump in bond sales also contributed to the reported decline in the State budget deficit last year.

The budget deficit has an important bearing on inflation, because it is traditionally funded largely by money creation. Evidence indicates there was continued growth of inflationary pressures in 1990, despite the reported decline in the budget deficit. Growth in average monthly wages in State enterprises continued to increase. Money income of the population, which also includes income transfers from the State budget and income from the cooperative sector, increased even more strongly (figure 1).

The official price index for goods and services shows only a 5 percent increase in 1990. Given the trends in nominal income growth and contraction of economic activity, actual inflation (both open and repressed) for 1990 is estimated to be 15-20 percent. Until December 1990, prices in urban farmers' markets were generally free to respond to supply and demand, and were therefore an indicator of inflationary pressures. For the year as a whole, prices in these markets increased by 29 percent, but by December, farm market prices were 50 percent higher than in December 1989 (figure 2).

Figure 1
USSR Money Income Growth



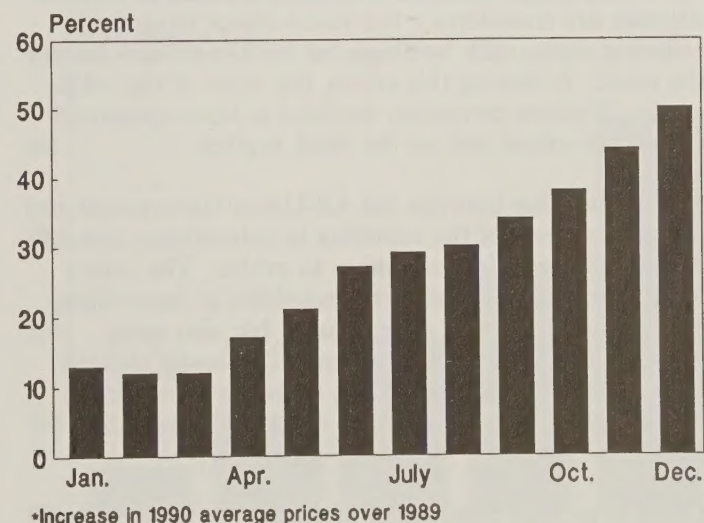
A Future Without Markets?

Under pressure to gain control over the deepening economic slide, the Government has turned away from efforts to lay the foundation for a market system. Last September, the Supreme Soviet considered adopting the radical "500 days" market reform proposal. This proposal called for establishing the basics of a market economy, including regulated capital markets, increased private and corporate property rights, and market-determined prices. The program had numerous inconsistencies and understated the difficulties associated with reform. A combination of strong broad-based resistance to radical economic change and ignorance of how a market system functions outside the top policy-formulating circles assured eventual rejection of the "500 days" proposal.

Since October, virtually all key economic advisors associated with market-oriented reforms have resigned from Gorbachev's USSR Government and Boris Yeltsin's Russian government. Many complained about the unrestrained populism of Government leaders and policymakers, who have failed to introduce needed tightening of fiscal policy and are reluctant to support privatization of State assets or allow markets to determine prices.

The nascent cooperative and entrepreneurial sector of the economy is increasingly accused of profiteering and speculation. By attempting to satisfy consumer demand in an economy dominated by irrational state-set prices, the cooperatives can naturally reap large profits. Excessive profits could be eliminated by liberalizing prices. Rather than do this, the Government has chosen to crack down on those people essential for a successfully functioning market system.

Figure 2
Collective Farm Market Prices*



Some of the friction between the Government and the nascent entrepreneurial sector might be alleviated by the retail price increases for State and cooperative trade implemented in April. Retail prices, on average, were increased 60 percent, with increases of 100-200 percent for most food commodities. This reform reduces the tremendous gap between what consumers are willing to pay for goods and what the dominant State trade network is charging. This should cut into arbitrage profits of non-state trade channels, at least until the new state-set prices begin to diverge further from market clearing prices. What the price revision does not do is improve the basis under which most prices are formulated. Markets will now determine prices for roughly 30 percent of retail trade, mostly of higher-priced, luxury goods. Goods accounting for a further 15 percent of retail trade will have regulated price ranges. However, in the current inflationary environment, the maximum allowable price is likely to apply, making the regulated prices, in fact, state-set prices. The remaining 55 percent of trade is to be covered by State prices.

Changes in credit policy have been introduced. Interest rates have been raised from the traditional level of 0.75-2.0 percent, to a new range of 6 percent for short-term credit and 11 percent for credit of more than 5 years. These rates remain well below the current rate of inflation and are not likely to significantly improve the allocation of capital within the economy, but are a step toward eventual adoption of market-determined rates.

The repudiation of 50 and 100 ruble notes in January was an attempt to reduce excess cash holdings of the population. Individuals were entitled to exchange these notes for smaller denominations up to the value of their monthly salary. Exchanges of sums greater than this was to be determined on a case by case basis by designated councils. This procedure was hoped to reduce cash holdings of the population by about 15 billion rubles. In comparison with the population's officially estimated excess cash holdings of over 130 billion rubles (other estimates run as high as 250-300 billion when savings deposits are considered), this had a minor impact on reducing excess cash holdings, but further eroded faith in the ruble. Following this action, the value of the ruble against Western currencies declined at State-sponsored currency auctions and on the black market.

The relationship between the All-Union Government and the governments of the republics in determining control over the State budget continues to evolve. The center has granted more rights to the republics in determining government budgetary expenditures, but also more responsibility for raising revenues. The center thereby aims to shift pressure to reduce spending to republics, but also recognizes the need to decentralize spending authority.

Other steps have been taken to reduce the State budget deficit. A 5-percent sales tax has been introduced.

However, in the first quarter of 1991, republics failed to make planned contributions to the All-Union budget, resulting in a deficit of 31 billion rubles.

In January, the All-Union Government tightened its control over hard currency revenues of enterprises with the aim of improving the country's ability to service its debt. However, this reduced the incentive for enterprises to export. Further steps are likely this year to reduce real earnings and savings of both enterprises and individuals.

The policy initiatives exhibited since last fall largely have not furthered the goal of market reform. They represent partial measures designed to stabilize the economy in the context of a partially decentralized, but essentially non-market, environment. Because critical problems are not being addressed head on, most importantly the strength of the ruble as a means of exchange and the ability of enterprises to trade at mutually agreeable prices, the economic situation is expected to worsen. A worsening will increase pressure to reinstate central controls over the economy, with significant consequences for enterprise, regional, and republican autonomy. The path of recentralization offers little hope of economic recovery. In lieu of a comprehensive Government program to move to a market system, enterprises appear to be expanding the use of negotiated prices among themselves. The continued economic slide will encourage enterprises to interact with greater flexibility and on mutually agreeable terms.

If experience in other socialist economies is an indication, the Soviet economy might contract as much as 10 percent. Such a contraction would raise serious questions about future Soviet trade patterns.

How Inflation Gained Momentum

The single largest revenue source for the State budget is profit taxes from State enterprises. As shown in table 3, profit taxes have not increased since 1985 and their share of overall revenues has declined from 32 percent to just 26 percent in 1990. Enterprise profits, on the other hand, increased strongly between 1985 and 1990, particularly profits of agricultural enterprises. If the 1985 average enterprise-profit-tax rate of 64 percent had been maintained, the additional State budget revenues would have been 210 billion rubles, enough to cut the deficit for the period by nearly two-thirds.

What were enterprises doing with the windfall increase in retained earnings? During 1985-90, total investment (including that funded by the State budget) increased from 179.5 billion rubles to an estimated 225 billion rubles, or by 4.6 percent per year. Enterprises also used their funds to reduce outstanding debts. A large share of retained profits, however, went into boosting wage and

Table 3--State budgetary revenue from profits tax, enterprise profits, and foregone profits tax revenues, USSR.

Category	1985	1986	1987	1988	1989	1990
Billion rubles						
State Budget Revenue	372.6	371.6	378.4	378.9	401.9	452
of which profits tax	119.5	129.8	127.4	119.6	115.5	115.5
Profits 1/	186.6	212.7	223.3	260.8	292.1	288
of which industry	98.8	112.3	116.7	128.9	136.9	NA
and agriculture 2/	21.3	25.1	30.3	39.9	44.6	58
Percent						
Share of profits paid to the budget 3/	64	61	57	46	40	40
Index (1985 = 0)						
Foregone profits tax (1985 = 0) 4/	0	6.3	23.4	47.4	67.4	64.8

NA = Not available.

1/ Of all state enterprises and collective farms. 2/ Collective and state farms and other state agricultural enterprises. 3/ Profits tax does not include unsubstantial budgetary payments of 1-2 billion rubles per year from collective farms. 4/ Applying the calculated 1985 profits tax rate of 64 percent to actual profits during 1986-90 and subtracting actual profits tax.

Sources: *Narodnoe khoz'yaistvo*, various years and *Ekonomika i zhizn'*, No. 5 (1991).

bonus payments, particularly beginning in 1988. According to data in the 1989 *Narodnoe khoz'yaistvo*, virtually all retained profits of State enterprises were allocated to labor payments in 1988 and 1989 (figure 3).

The decision to flood enterprises with funds was a direct result of adopting the Decree on Enterprise Self-Financing in 1988-89. If enterprises were to avoid bankruptcy or severe financial problems under the new self-financing regulations, then enterprise liquidity had to be increased. This was done by cutting profit tax rates and, apparently, raising producer prices (or allowing them to rise). The increase in retained earnings provided more funds than enterprises were willing or able to invest. Despite increased enterprise liquidity, the

level of centralized investments funded by the State budget declined little, at least until 1990 (table 4). Furthermore, enterprises were, apparently, still constrained in undertaking investment projects by planned allocation of physical resources. With excess funds, enterprises began bidding for the input least controlled by administrative hierarchy, i.e. labor.

Money income of the population shows an increasing rate of growth through the 1987-90 period. The growth in money income was fueled by a roughly 40 percent increase in average monthly wages in State enterprises between 1985 and 1990 and a similar jump in income transfers from the State budget (figure 4). The growth in payments to the agroindustrial complex and in income

Figure 3

State Enterprise Earnings Going to Labor Payments

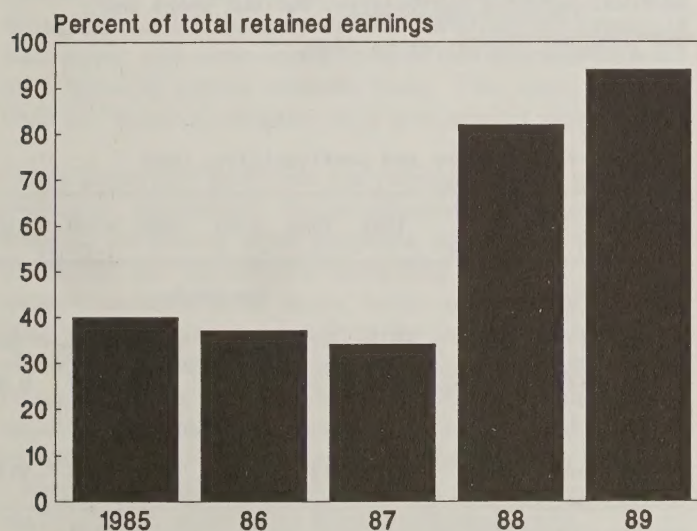
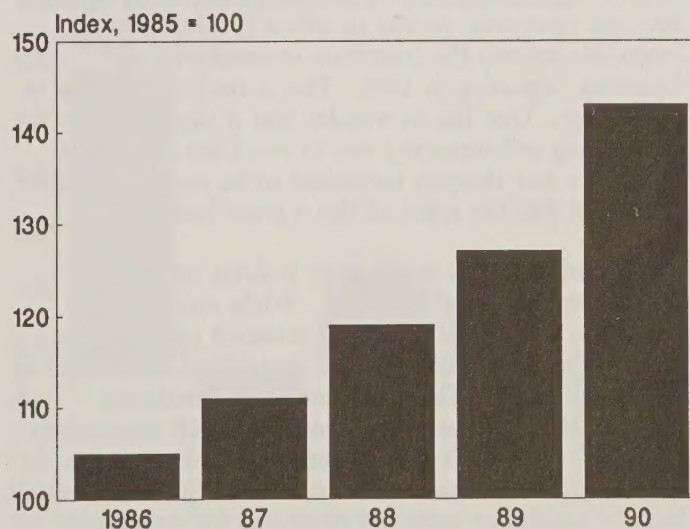


Figure 4

Income Transfers from the State Budget, USSR



transfers accounts for the lion's share of increased budgetary expenditures. Most of the payments to the agroindustrial complex subsidized low retail prices for food. Income transfers are made up primarily of payments for pensions, disabilities, education, and health. By 1990, both enterprises and individuals were flush with cash holdings (relative to what they could use that cash for).

The Case of Agriculture in More Detail

Agriculture's place in these financial trends is particularly interesting. Profits increased much more rapidly in agriculture than in industry between 1985 and 1990, and payments to the agroindustrial complex accounted for an important share of increased budgetary expenditures. Payments to farms for marketed production jumped by 44.5 billion rubles between 1985 and 1989 and an estimated additional 15-22 billion rubles in 1990 alone (table 5). Though greater quantities sold account for some of the increased payments, most is due to higher prices offered to farms. Higher procurement prices poured an additional 110 billion rubles into State and collective farms between 1986 and 1990, allowing for cumulative increased farm profits over the 1985 level of 91.4 billion rubles.

Last year, the USSR decided to write off all accumulated long-term debt of State and collective farms--60 billion rubles. Russia went further in writing off some short-term debt as well. The primary purpose of the debt write-off and procurement price increases was to guarantee farm profitability under the new regime of enterprise self-financing, and avoid the possible threat of farm bankruptcy. The number of unprofitable farms declined drastically between 1987 and 1988, the year the self-financing decree came into effect (table 6).

The End Result of Soft Financial Policies

Two factors are central in explaining the run up in the State budget deficit. First, the State took steps to increase enterprise profits to soften (probably to an incredible extent) the transition to enterprise self-financing beginning in 1988. This is readily apparent in agriculture. One has to wonder that if the point of introducing self-financing was to weed out inefficient producers and sharpen incentives to be more productive, then what was the point of this *a priori* bail out?

What made matters worse were policies on the expenditure side of the budget. While enterprises enjoyed a windfall of increased retained earnings, the State budget continued to fund centralized investment at traditional levels. This, combined with continued constraints on access to physical inputs, left enterprises with little to do with their money than bid up wages. While budgetary revenues were flat, the State committed itself to ambitious spending programs for consumers, including maintenance of low retail prices for food.

Commitments to index and compensate consumers for price increases now threaten to further fuel the inflationary spiral. (Edward C. Cook)

Table 4--Total investment, investment in the agricultural sector, and investment financed through State budget allocations, USSR

Category	1988	1989	1990 1/	1991 2/
Billion rubles				
Total USSR investment	218.2	228.5	225	220
Agroindustrial sector	67.2	70.9	73	73
Agriculture	53.0	56.2	NA	NA
Related industries	14.2	14.7	NA	NA
State budget investment				
subsidies	87.1	74.6	53.0	NA
Agroindustrial sector	16.9	14.0	13.3	29.7

NA = Not available. 1/ Preliminary data. In recent years final data have been a few percent higher. 2/ Projected.

Table 5--Payments and profits, state and collective farms, USSR

Type	1985	1986	1987	1988	1989	1990
1985 = 100						
Procurement price index	100	102.7	105.3	118.2	126.1	140-145
Billion rubles						
Payments to farms	116.2	124.7	131.5	149.6	160.7	176-182
Increased payments due to higher prices after 1985	--	3.1	6.2	21.1	30.3	46-52
Farm, profits	21.3	25.1	30.3	39.9	44.6	58

Sources: Narodnoe khozyaistvo, various years and Ekonomika i zhizn', No. 5 (1991) except for estimates for payments and prices in 1990.

Table 6--Farm numbers and profitability, USSR

Category	1985	1986	1987	1988	1989	1990
Thousands						
Number of farms	49.8	49.2	49.9	50.2	51.2	NA
of which:						
Unprofitable farms	8.7	6.5	6.5	1.8	1.2	0.9
Percent						
Share unprofitable	17.8	13.2	13.0	3.6	2.3	1.7

Sources: Narodnoe khozyaistvo, various issues and Ekonomika i zhizn', No. 5 (1991).

Agricultural Policy in a Quandary

Soviet agricultural policy continues to be torn between the need to increase efficiency on the one hand, and resistance to change in the countryside on the other. In the last year little real progress has been made in agricultural restructuring. This despite the fact that important new legislation has been adopted on land, family farming, and property. Agricultural policy in the USSR is currently dominated by conservatives, who shy away from pushing changes in property rights and management. Rather, they argue for access to more resources and more favorable terms of trade for agriculture within the existing management framework. Their rationale is that for a healthy agricultural sector, more resources and better living conditions in the countryside are essential. In the process, though, they tend to downplay or ignore the management and incentive problems which have plagued Soviet agriculture for decades.

Since last year, soft financial policies towards agriculture have continued to predominate. In addition to the write-off of all long-term debt and a portion of short-term debt in 1990, price increases implemented between September 1990 and January 1991 were more than enough to compensate farms for anticipated cost increases this year. The problem is that by attempting to guarantee farm profitability, incentives to introduce restructuring of farm management and operations, or improve farm efficiency, are weakened.

The large increases in retail food prices introduced in April move Soviet domestic prices closer toward both costs of production and world prices, but fail to directly incorporate supply and demand factors. Most resource allocation within Soviet agriculture continues to be on an administrative rather than market basis. But the degree of administrative control is changing in a number of important respects. First, republics and oblasts are exercising greater initiative and authority in dealing with questions of agriculture and the food economy. Second, disruptions in traditional resource flows are leading enterprises and some farms to seek out business partners on a mutually agreed contract basis. This could form the basis for eventual adoption of a true market system.

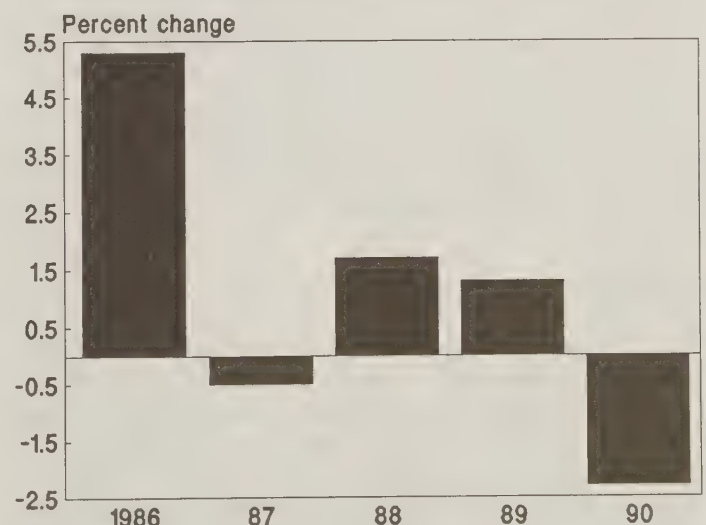
Other important problems are proving difficult to overcome, particularly the introduction of greater competition among input suppliers, agricultural service industries, and agricultural marketing. Without improvements in these areas, farms--particularly the new family farms--face serious obstacles in operating efficiently. Development of private family agriculture is progressing, but faces serious obstacles and cannot be expected to account for more than a marginal share of agricultural land and production in the next few years. Changes in credit and banking policy also appear inadequate to move away from traditional credit allocation by administrative fiat.

Soviet agriculture will be hard pressed to show any growth in 1991. The livestock sector is in the midst of a contraction, which will continue well into this year, due to inadequate feed supplies. Production of both meat and milk is expected to be down compared with 1990. A rebound in crop production, which fell in 1990 despite a large grain harvest, will be necessary to avoid a second consecutive decline in gross agricultural production (figure 5). Early prospects are dimmed by declines in fertilizer deliveries, machinery, spare parts, and fuel availabilities.

The large April increases in retail food prices stemmed in part from a realization that growth in agricultural production was not a viable means of reducing excess demand for food. Though agricultural production has been stagnant since 1986 (with little hope for an upturn in 1991), it has not declined significantly, and yet the food market situation has deteriorated seriously.

The cause of the worsening food market situation in the USSR in recent years has been ill-conceived macroeconomic policies which fueled demand and disrupted interregional trade (see later article on food problem). Surplus producing regions became less interested in selling agricultural commodities into central food reserves at low state-set prices, particularly when they were not receiving promised raw materials and industrial products in return. This left food deficit regions such as Moscow, Leningrad, and the Urals with declining food supplies in 1990/91. Furthermore, the runup in money incomes greatly fueled demand for agricultural commodities and, combined with low state-subsidized retail prices, guaranteed market shortages. The retail price increases have yet to show a significant impact on food market imbalances, and do not represent a changed method for price formation

Figure 5
Change in Gross Agricultural Output, USSR



or a shift toward a market system. Republics and regions, however, may attempt to go beyond the All-Union guidelines by shifting more food commodities to a free market basis.

The Emergence of the Agrarian Lobby

In the last year, representatives of traditional institutions in the countryside--primarily successful State and collective farm managers--have reasserted control of agricultural policy. This agrarian lobby argues that Soviet State and collective farms have never demonstrated their full potential because of constraints imposed upon them by the administrative apparatus. This includes constrained access to inputs, services, and marketing channels, as well as direct interference in the day-to-day operations of State and collective farms.

The agrarian lobby does not seek solutions to agricultural problems through changed property relations (i.e., a breakup of existing farms) or increased financial discipline on farms. Rather, it concentrates on increasing the flow of resources to agriculture and improving terms of trade with the rest of the economy. The idea of markets is supported to the extent that this means improved up- and down-stream linkages for farms (as input suppliers and marketers of agricultural products become more responsive to farm needs). But a shift to markets is not viewed as requiring significant changes in how farms operate. The agrarian lobby does not actively support the establishment of private farms, but accepts them as marginal players in the future of Soviet agriculture.

The success of the lobby can be seen in the unconditional write off of overdue long- and short-term credit agreed to last summer, and very favorable increases in farm procurement prices introduced last fall. While the number of unprofitable farms has dwindled and farm profits have nearly tripled since 1985, important questions concerning efficient resource use, incentives, and overall farm management have been sidestepped or ignored. A major fear is that if financial pressure is brought to bear on inefficient farms, then those farms could fail and agricultural production decline. Furthermore, the lack of employment alternatives could doom high-cost agriculture regions, many already beset by infrastructure and developmental problems, to serious economic decline.

Procurement Prices Increased

Last summer and fall prices paid to farms for agricultural commodities went up by an average of 32 percent. The price increases were meant to cover higher farm costs resulting from increased machinery and raw material prices, interest rates, and farm contributions to cover pensions and other social spending. As part of the package, the number of price zones was greatly reduced.

For beef, pork, and mutton there are now five price zones, and for milk, four to five, depending on milk quality. Previously there were 49 price zones for beef and 98 for milk. There are just three zones for soft wheat, barley, and oats. Previously there had been as many as 68 price zones for soft wheat. There are now single nationwide prices for poultry, durum and hard wheats, corn, rice, pulses and oilseeds (except sunflowerseed, which has two zones). Prices for potatoes, fruits, and vegetables will now either be set on a free contract basis or on a regulated contract basis. Regulated contracts mean that an allowable price range will be determined by the State. Whether regulated contract prices differ in practice from State-set prices remains to be seen.

Special emphasis has been placed on improving the profitability of grain production. Procurement price increases for grain averaged 50 percent, with particularly large increases for food grains. Profitability of grain production (comparing the average procurement price with the average prime costs of production) is now 122 percent (table 7). That is, the average procurement price for grain (301 rubles) now exceeds the average prime cost of production (135 rubles) by 2.2 times. Profitability of livestock products remains essentially unchanged, except for milk, which is lower.

The impact of these procurement price changes on farm production and sales may be small or actually lead to reduced sales. Many farms have more rubles than they can dispose of, given limited access to inputs and services. Already high profits for grain and sunflowerseed before the new price increases were announced did not greatly stimulate sales. Rather, farms have retained an increasing share of their grain for livestock feed, despite the lower profitability of livestock products.

The system of price zones announced by the USSR Government can be supplemented by the republics.

Table 7--Current and anticipated profitability by crop, USSR 1/

Crop	Before reform	After reform
	Percent	
Grain	81.3	122.1
Sunflowerseed	272.6	211.4
Cotton, raw	48.0	58.5
Sugarbeets	34.0	40.9
Milk	62.3	39.8
Cattle 2/	21.5	21.3
Hogs 2/	23.3	21.0
Poultry 2/	11.1	17.6

1/ Average procurement price divided by average prime costs of production (sebestoimost'). 2/ Liveweight. Source: *Planovoye khozyaistvo*, No. 11 (1990), pp. 44-54, translated in JPRS-UEA-91-009, 2/26/91, pp. 19-27.

They have the right to establish additional price zones for agricultural commodities within their boundaries. But, if these supplemental republic price zones require greater net payments to farms than the national structure, funding must come from the republic budgets.

The payment of special differentiated bonuses for the sale of agricultural commodities from weak State and collective farms has been dropped. The problem with these differentiated bonuses was that they virtually guaranteed farm costs would be covered, no matter how high costs might go. In place of the differential bonus fund, the State will finance 17 billion rubles of investment in financially weak State and collective farms in 1991. This represents nearly one-third of all on-farm investment. Given that about one-third of Soviet farms are considered financially weak (i.e., dependent on differential bonus payments), they probably are getting all their investment costs covered by the State.

The sum of increased procurement prices and State-financed investment is larger than anticipated increases in costs (table 8). The higher payments to farms also mean that, without retail price increases, subsidies to the agroindustrial complex would have increased by roughly 60 billion rubles this year (table 9). As a result of retail price increases, the budgetary payments to the agroindustrial complex are likely to fall compared with the estimated 125 billion rubles for 1990. (This sum excludes the new income compensation payments.)

The system of differentiated price zones evolved to extract rent associated with land quality and farm location. With a shift to a market system, national prices are required. So the amalgamation of price zones is a step in the right direction. While the number of zones is reduced, however, an adequate system of direct differential land rents has not been introduced. Land payments this year and in the next few years are expected to be only 3-4 billion rubles. In comparison, Soviet estimates are that full land rental payments would be 30-35 billion rubles.¹ Without land markets, which do not appear to be in the offing, determining proper land rents is problematic. Work in this area is well underway at Soviet research institutes, but there are conceptual as well as practical problems holding up their introduction. In the meantime, it appears that farms situated in desirable parts of the country are reaping large profits as a result of the elimination of price zones. Such a situation might tempt administrators to once again arbitrarily intervene in farm finances.

Retail Prices Increased

Significant retail price increases for food commodities were enacted in April. Meat prices have roughly tripled, with even a larger increase in beef prices. Milk product prices have increased by 130 percent, with larger increases for butter and smaller increases for fluid milk. Large increases were also enacted for bread, sugar,

vegetable oil, and eggs (table 10). Prices for certain commodities, such as coffee and vodka, will remain unchanged, while the prices for fruits, vegetables, and potatoes will now be on a contract basis.

Table 8--Anticipated increased costs and payments to farms resulting from price increases, USSR

Category	Amount
	Billion rubles
Increased costs	60.8
of which:	
Input prices	35.2
Credit costs	5.8
Contributions to social insurance programs	15.0
Introduction of water use fees	1.9
Service and transportation charges	2.9
Increased payments	68.3
of which:	
Procurement prices	51.9
Targeted investments	16.4

Source: Ministry of Finance of the USSR

Table 9--Subsidies to the agroindustrial sector, USSR

Category	1989	1990 1/	1991 2/
	Billion rubles		
Total	108.5	125.5	182.6
Retail price subsidies	55.0	70.9	146.9
Differentiated farm price bonuses	32.2	33.1	--
Total investment subsidies	16.1	14.2	30.8
Miscellaneous expenditures	6.2	7.4	4.9

-- = None or negligible.

1/ Preliminary. Includes 9 billion rubles in above-plan subsidies for grain purchases. 2/ Estimates without retail price increases.

Sources: APK: *Ekonomika, upravlenie*, No. 3, 1989, p. 12, and *Izvestiya*, 9/27/89.

Table 10--State retail food prices, USSR

Commodity	Before April 1990	As of April 1990
	Rubles	
Beef (kilogram)	2.00	7.00
Mutton	1.90	6.00
Pork	1.90	5.30
Poultry meat	3.40	5.60
Milk (liter)	0.28	0.50
Hard cheese	3.20	6.40
Butter (kilogram)	3.60	8.80
Margarine	1.50	3.00
Sunflowerseed oil	1.70	3.40
Sugar (kilogram)	0.94	2.00
Bread (loaf)	0.20	0.60
Wheat flour	0.46	1.40
Rice	0.88	2.20
Coffee (kilogram)	20.00	20.00
Vodka (bottle)	10.50	10.50

The logic behind these increases is not only to improve relative domestic prices and reduce excess demand for food, but to alleviate pressure on the State budget. While prices are increasing for many non-food commodities and for some services, food has become relatively more expensive compared to other consumer purchases. Based on initial reports, it is difficult to determine how extensive the accompanying income compensation package will be. Prime Minister Valentin Pavlov claimed that compensation would cover roughly 85 percent of the price rises. Most of the compensation will be in the form of wage supplements. Other payments will be made for children and other non-working dependents. Personal savings accounts will be boosted by 40 percent as another channel of compensation. The amount of any deposit accounts exceeding 500 rubles, however, will be frozen until 1993.

The general level of retail prices rose by about 60 percent. Potential savings to the budget are difficult to gauge based on this information alone. They could conceivably be as large as 30 billion rubles, and if compensation is less than the stated 85 percent, even larger.

Uncertainty over the size of the actual price increases and extent of compensation stems from the blurred relationship between the All-Union budget and the budgets of the republics. According to Prime Minister Pavlov, republics will have the right to lower retail prices announced by the center, but will have to pay for subsidies for lower prices out of their own budgets.

The price increases are likely to have a significant impact on internal food markets. When Poland announced a similar hike in State-set prices for food commodities in 1982, excess demand was virtually (if temporarily) eliminated. More recently, retail price rises resulting from a shift to markets in East European countries have also significantly impacted demand. The potential for influencing trade patterns also exists. Roughly 4-5 million tons of cheap bread reportedly are fed to livestock every year in the USSR. Tripling bread prices will certainly have some impact on import demand for wheat. If excess demand for livestock products is eliminated, then pressure to import meat, butter, and feed grains will be lessened. Polish agricultural imports dropped significantly starting in 1982, in part because of higher domestic prices and in part because of serious trade credit problems. In the last two years, the export position of Polish agricultural commodities has been strengthened as a result of higher domestic retail prices.

Reforms in Banking and Credit

The agriculture sector is being affected by economy-wide changes in banking and credit policies. The

Agroindustrial Bank (Agroprombank) was the monopoly credit provider to agriculture, and was a sectoral branch of the State Bank (Gosbank). Last year Agroprombank was transformed into a joint-stock venture. The goal was to shift lending to agriculture from a State-administered process, where funds were handled in accordance with planned allocation of physical assets, to a market-oriented commercial basis. Toward this end, new commercial and cooperative banks have been created and encouraged to lend to farms and the food industry.

Because of a lack of capital and experience in agriculture lending, the new commercial and cooperative banks are expected to play only a marginal role in farm lending in the foreseeable future. Though Agroprombank has been converted to a commercial basis, 60 percent of its capital comes from the Ministry of Finance. Other State ministries and organizations account for most of the rest of the bank's capital. Therefore, lending practices are likely to remain dominated by central policymakers' priorities. In addition, Agroprombank does not appear to be in position to undertake significant financing of agricultural perestroika. Its current loan portfolio of 217 billion rubles exceeds its statutory lending authority of 160 billion rubles. This statutory lending authority is based on fixed authorized capital of 8 billion rubles and a minimum capital-to-loan standard of 5 percent. Since a good deal of the current portfolio is in default and will be written off (by Soviet accounting this will not affect bank capital), some additional lending will be allowed. However, State and collective farms will receive priority.

Only 1 billion rubles of lending is anticipated from Agroprombank for agricultural lease teams, agricultural cooperatives, and private peasant farmers. To put this figure in perspective, it represents about 2 percent of total annual agricultural investment from all sources of funding (including own investment). Other sources of credit will be available to private farms, but probably not enough to finance a massive restructuring of farm holdings. The Russian government has made available 1 billion rubles to the Russian Republic Committee for Land Reform in collaboration with the Association of Peasant Farms and Agricultural Cooperatives of Russia (AKKOR) for lending to members.² One potential problem in lending to private farmers is that current legislation forbids using land as collateral in loans. Lack of collateral will make transition from traditional soft credit policies more difficult.

Land Reform Progresses

Since early 1990, legislation that opens up the possibility of private family farming has been adopted at the All-Union and republic levels. In February 1990, the central Government passed legislation allowing for lifetime use or proprietorship right (*vladenie*) of land by private individuals or families, including the right of inheritance. The initial All-Union legislation did not allow for the

sale of land or the use of land as collateral in securing loans. In this sense, full property rights (*sobstvennost'*) were not granted.

Subsequently, the republics have passed legislation on the issue of land tenure and property rights in agriculture. In many cases, the republic legislation goes beyond the February 1990 All-Union version.

The changes in land tenure possibilities are potentially significant for Soviet agriculture. For the short to medium term, though, changes are likely to come slowly. By the beginning of 1991 there were 40,600 private farms in the USSR that had been allocated 700,000 hectares of land. This accounted for 0.1 percent of all agricultural land in the country. The majority of these farms are concentrated in the Baltics and in mountainous regions of Georgia. Since the fall of 1990, the number of private farms in Russia has grown from 2,500 to 8,500, but they still account for a very small share of agricultural land. There are apparently very few private farms in the Ukraine or Belorussia.

The process of fostering a private farming sector will require a good deal of time. Government policy calls for maintaining equal operating conditions and opportunities for all types of farms. In the meantime, the economic and infrastructural underpinnings for successful family farming are lacking. Services, appropriate machinery, and other inputs are in short supply. As indicated, there may not be sufficient credit available for large expansion of the private sector anytime soon. Private farmers will likely remain heavily dependent on neighboring State and collective farms for all kinds of support, including marketing of output. Until these new relationships are worked out in practice, most Soviet family farmers will be in a potentially precarious position. In the case of Poland, there has been little interaction over the years between private farmers and neighboring State farms.

A large-scale dissolution of Soviet State and collective farms is not on the policy agenda. This is viewed as a costly and unrealistic method of agricultural restructuring. Land legislation in some of the republics, particularly Russia, calls for a recodification of land, under which all current users of land would have to demonstrate that they were making appropriate use of their holdings. This could force particularly inefficient State and collective farms to cutback the scale of their operations or cease functioning altogether.

Food Shortages and the Need for Markets

Agriculture and the food economy have been negatively affected by the ill-conceived macroeconomic policies of the last few years. As the number of excess rubles in circulation continued to grow, farms and enterprises

became increasingly disinterested in selling their commodities at low State-set prices. Regions and republics have also had incentive to hoard agricultural and food commodities to ensure self-supply, and for use as barter in inter-regional trade.

The growing friction in inter-regional trade manifested itself in declining contributions to central food reserves--known as the All-Union Fund--in 1990. (For example, meat sales to the All-Union Fund declined by 20 percent last year.) Food-surplus regions such as the Ukraine, southern portions of Russia, Belorussia, and the Baltics have slashed contributions to All-Union reserves to maintain or increase local consumption. The result has been declining food supplies in natural-deficit regions such as Moscow, Leningrad, the Urals, and parts of Central Asia. Even with the declines, per capita food consumption in Moscow and Leningrad might have remained above average for the country as a whole for important commodities such as meat, milk, and vegetables.

Food-market shortages were exacerbated by inappropriate price and income policies. The growth in money incomes since 1985 was enough to significantly boost demand for livestock products, fruit, and vegetables. Retail prices did not increase to maintain food markets in balance. While market shortages worsened noticeably during 1990, food consumption (as estimated from disappearance data) for the country as a whole declined less than 3 percent. Fruit and vegetable consumption declined by 8 and 4 percent, but bread, meat, and milk consumption stayed the same.

The recent increases in retail prices move them toward market clearing levels. These prices reduce excess demand for food across the country, and thereby alleviate some of the incentive to hoard agricultural commodities at the regional level. However, for gains from inter-regional trade to be more fully realized, and for more economically rational activity in general, buyers and sellers need to be allowed to reach mutually agreeable prices. Were farm resources allocated according to market demand rather than plan targets, most losses could be eliminated. The alternative is one form or another of administrative allocation of resources. Of course, every modern economy is a mix of market forces and Government policies that intervene in those markets. But in the Soviet Union this balance is clearly far from optimal. It is difficult to imagine how Soviet agriculture and the food economy will significantly increase efficiency without not only stronger financial discipline, but also market prices that direct resources into areas desired by consumers. Meanwhile, lobbying for more agricultural resources, without ensuring they will be used more effectively than in the past, offers little hope for improvement. (Edward C. Cook)

Investment in Agriculture and Food Sectors

Debate over the future of investment policy in the agroindustrial complex in the USSR continues. Government policy has been to support the demands of the agrarian lobby and to promise increased resources for agriculture. But the contracting overall economy and accelerating inflation for goods and services purchased by farms are making fulfillment of this promise problematic. Obvious investment requirements remain, despite very large investment spending in the past. Over 1981-88, investments in the agroindustrial complex and branches supplying machines and equipment to agriculture amounted to 470 billion rubles, or over 30 percent of total investment in the USSR. This included 379 billion rubles to agriculture and 31 billion rubles to the food industry. Capital assets worth 460 billion rubles were brought on line.

The failure of agricultural production to respond to this large investment effort typifies the inefficiencies of the Soviet economic system. Those failures include the low quality of inputs and services provided to farms, no mechanism to properly allocate investment resources, and little incentive to efficiently use available resources.

Currently, pressing investment requirements remain in rural infrastructure, land improvement, input and service sectors, and, possibly most important, food processing and marketing. Furthermore, past practices have created the need for massive investment for environmental cleanup. According to Government statements, rural housing, road construction, and the food industry will receive an increasing share of investment in the agroindustrial complex during 1991-95. Plans call for a 19-percent increase in total agroindustrial investment in the first half of the 1990's. However, in real terms, investment is likely to fall compared with 1986-90. In 1990, supplies of machinery, fertilizer, agricultural chemicals, and fuel declined. Data on commissioning of irrigation and drainage lands in 1990 are not available, though they probably continued the decline exhibited since 1986. Fewer inputs and services are not necessarily a bad thing if they were inappropriate or of bad quality. Evidence of this might be the record grain yields achieved in 1990 despite a 20-percent decline in fertilizer deliveries between 1988 and 1990.

Of central importance to the future of Soviet agriculture will be improving the range and quality of up- and down-stream support. Input and service suppliers need to be more responsive to farm requirements and desires. Similarly in the food processing and marketing network, greater attention needs to be given to improving the quality of product offered to the consumer. There is little evidence of progress in these areas at present. In the past, investment flows proved resistant to official policies aimed at shifting priorities. In 1982, the Government came out in support of greater investment in the food industry, but by the end of the 1980's the

share of investment in the agroindustrial complex actually going to the food industry had not increased. Without systemic changes in how investment is utilized, prospects for improvement in agriculture and the food industry are not bright.

Failure of Agricultural Mechanization

A sharp decline of production and deliveries of many kinds of agricultural equipment continued in 1990 for the second consecutive year. The value of output of tractors and machines and equipment for the cattle and feed sectors fell by 7 percent. For other agricultural machinery the drop was 3 percent. Efforts to start up large-scale production of small tractors and other essential equipment and tools for family agriculture failed to make headway.³

Since 1986, industry has reduced the agricultural deliveries of most types of equipment, including tractors, plows, seeders, and forage and potato harvesters, by 15-50 percent (table 11).⁴ Perhaps more important is the failure in recent years to improve the generally low quality of Soviet agricultural machinery. The Soviet agricultural machinery industry is heavily concentrated, with just a few enterprises accounting for the bulk of production. For particular types of machinery, there is frequently only one producer. These enterprises have used their monopoly power to disguise inflationary price increases in product redesign. They have been able to improve their profitability while cutting back production, and doing little to improve the quality of their output. Attempts to open up domestic producers to foreign competition are not likely to succeed until farms' access to hard currency improves significantly. Given hard currency shortages, this is not anticipated anytime soon.

According to Soviet calculations, current machinery inventories are well short of optimal. However, because of poor quality and a lack of adequate spare parts and servicing, scrapping rates are so high that mechanization goals have no chance of being attained in the current economic environment. The Soviet Union has no more than half the number of tractors per 1,000 hectares of plow lands as Czechoslovakia, and about 3.6 times less than the United States. In terms of per capita rural energy consumption, the USSR is one-fourth the level of the United States.⁵

The expenditures of State and collective farms on equipment servicing and repairs between 1976 and 1986 grew 2.3 times and reached 8 billion rubles annually. The losses due to equipment down-time because of technical problems are also huge -- 250,000 tractors, 50,000 grain harvesters, 100,000 trucks, and many other

Table 11--Tractors, grain combines, and trucks: Inventories, deliveries, and scrapping rates, USSR 1/

Year	Tractors			Grain combines			Trucks		
	Inven- tories	Deliv- eries	Scrapping rate 2/	Inven- tories	Deliv- eries	Scrapping rate 2/	Inven- tories	Deliv- eries	Scrapping rate 2/
	Thousands		Percent	Thousands		Percent	Thousands		Percent
1966-70 average	1,821	293	12.6	578	94	13.8	1,105	133	NA
1971-75 average	2,189	333	12.3	661	90	12.3	1,282	220	13.6
1976-80 average	2,495	361	12.9	701	108	14.3	1,527	268	15.4
1981-85 average	2,695	370	12.3	791	112	11.6	3/ 1,692	3/ 274	3/ 13.9
1986	2,844	394	13.4	805	111	13.7	4/ 1,348	317	22.3
1987	2,759	354	15.4	774	93	15.4	1,350	330	24.3
1988	2,780	340	11.6	735	66	13.6	1,354	354	25.9
1989	2,689	299	14.0	689	66	15.2	1,349	329	24.7
1990	6/ 2,630	5/ 278	12.5	6/ 603	6/66	22.0	1,335	NA	NA

NA = Not available. 1/ Inventories are for the end of the year. 2/ Equal to deliveries, minus change in inventories, divided by inventories at the end of the preceding year. 3/ Average for 1981-83 from Soviet sources. No data were given for 1984. In 1988, the *Narodnoe khoz'yaistvo v 1987* gave inventories of 1,327,000 for 1987. Thus, the implied scrapping rate for 1984-85 is 58 percent, as the large stock of nonfunctional trucks was written off inventories. 4/ The 1987 *Narodnoe khoz'yaistvo za 70 let* (p. 207) reported inventories of 1,917,000, but the 1988 *Narodnoe khoz'yaistvo v 1987* (p. 166) reported 1,348,000. 5/ *Ekonomika i zhizn'*, No. 5 (1991). 6/ Goskomstat Press Bulletin, No. 19 (1990).

types of machinery nominally present in the pool, are effectively out of operation.⁶

Full mechanization of production processes has so far not been completed in a single branch of agriculture. About 70 percent of the farm labor force is engaged in manual labor. In the processing branches of industry, only 40-60 percent of labor has been mechanized.⁷

In order to meet the food industry's equipment needs, output and delivery of equipment was to increase from 2.1 billion rubles in 1987 to 4 billion rubles in 1990 and to 7.5 billion rubles in 1995. Over the entire period 1988-1995, the food industry is to receive about 37 billion rubles worth of equipment, substantially more than was delivered over the previous 40 years.⁸ However, there has been no obvious improvement in the performance of the Soviet food processing industry and there is some indication that these investment targets have not been met.

Attempts to convert military facilities to food industry uses have run into problems. The newspaper *Ekonomika i zhizn'* (No. 36, 1990) stated that:

...the efforts to convert the military-industrial complex to peace time production activities hold very little promise of success. The plan calls for doubling (in retail prices) the productive output of converted military capacities by 1995 against the projected benchmark for 1990. In physical terms, however, the planned targets look much more modest. In fact, the policy from the outset seems to rely heavily on hiding marginal physical increases behind the facade of retail price hikes. A major defect of the policy of

conversion is its failure to bridge the organizational, commercial, and technological gap between the military and civilian economies. Moreover, the military's share of the national economy is increasing at the expense of the civilian one.

Worsening Agrochemical Shortages

Production and delivery of chemical fertilizers have declined significantly since 1988 (table 12). During 1988-89 fertilizer subsidies were eliminated, thereby roughly doubling costs of fertilizer. Problems have also developed in maintaining production of raw materials for phosphate and potassium fertilizer production, and increasingly scarce energy supplies have been diverted from nitrogen fertilizer production. No data on domestic production and deliveries of plant protectants are available in 1990. In 1989, the use of pesticides equaled 7.2 kilograms (nutrient content) as against 10.7 kilograms in 1986.⁹ Problems with pollution and food quality associated with inappropriate fertilizer and agrochemical use are gaining more attention. Long-standing operational and administrative problems remain unsolved and rule out any chance of improvement in the agrochemical sector in 1991.

In terms of mineral fertilizer applications per hectare, the USSR has reached the level of the United States. Belorussia, Central Asia, and the Trans-Caucasus have attained the level of the developed countries of Western Europe. Crop yields in the USSR, however, are generally lower than those in other countries.

Mineral fertilizer application in Russia has increased 3.1 times in the last 20 years, while grain production rose

only 20 percent. In the same period, West German agriculture increased its fertilizer use by 40 percent and grain production by 80 percent. In France, the numbers were 130 percent and 110 percent.¹⁰ In 1989, roughly 30 percent of fertilizer deliveries were accounted for by inter-republic trade. The largest net suppliers to other republics were Russia, Belorussia, and Uzbekistan. The largest net importer from other republics was the Ukraine.¹¹

Over two-thirds of agricultural lands and one-half of arable lands are deficient in phosphorus. To bring deficient soils up to a satisfactory phosphorous content requires an additional 2 million tons of P₂O₅ annually. Because no phosphates are being produced locally in Siberia and the Soviet Far East, the lands there lack 75-80 percent of phosphorus.¹²

Soviet nitrogen fertilizers lose 30-50 percent of their effectiveness due to leaching, volatility of ammonia, and poor plant-food mixes.¹³ Nearly two-thirds of arable lands suffer from strong to medium contamination. Weeds take up 10-11 million tons of soil nutrients, lowering yields some 11-12 percent.¹⁴ On average, 6.5 tons of organic fertilizers (that is, about twice the current level) are needed annually to restore and boost soil fertility. One of the principal reasons for poor yields and low efficiency of mineral and organic fertilizers is that they are being applied on acidic and salinated lands without proper amelioration.

Table 12--Mineral fertilizer production and deliveries to agriculture, USSR

Year	Total 1/	Nitrogen	Phosphate	Potash
1,000 metric tons 2/				
Production				
Average for				
1966-70	10,379	4,210	2,985	3,177
1971-75	17,877	7,248	4,483	6,138
1976-80	23,328	9,283	6,128	7,910
1981-85	29,294	12,573	7,521	9,192
1986	34,737	15,200	9,328	10,200
1987	36,300	15,700	9,691	10,900
1988	37,100	15,800	10,000	11,300
1989	34,300	14,400	9,700	10,200
1990	31,700	NA	NA	NA
Deliveries				
Average for				
1966-70	8,452	3,520	2,704	2,221
1971-75	13,802	6,209	3,882	3,703
1976-80	18,063	7,632	5,287	5,137
1981-85	22,156	9,790	6,540	5,817
1986	26,514	11,475	8,354	6,677
1987	27,412	11,787	8,564	7,052
1988	27,196	11,587	8,556	7,044
1989	24,482	9,918	8,175	6,381
1990	21,500	NA	NA	NA

NA = Not available.

1/ Also includes trace elements. 2/ Nutrient weight basis. Nitrogen--20.5 percent N, phosphates--18.7 percent P₂O₅ and ground phosphate rock--19 percent P₂O₅, and potash--41.6 percent K₂O.

Soviet production of effective plant protectants lags far behind the West, where only several dozen grams are used per hectare of cultivated land. India and China have now overtaken the Soviet Union in the production of plant protectants.¹⁵ Owing to shortages of sprinklers, sprayers, and mixers, pesticides are misapplied up to 80 percent of the time.¹⁶

In 1989, the Ministry of Mineral Fertilizers was abolished and reorganized into the Agrochim (State Agrochemical Association). But, according to leading Soviet scientist L. Derzhavin, the newly-created Association is not likely to overcome either the problems of inferior quality fertilizers and plant protectants or poor agrochemical practices in general. For this, improvements in machinery and infrastructure are necessary. Republics and regions are now taking greater control over agrochemical use, reducing the role for a centralized organization such as Agrochim. One problem with greater regional autonomy is not enough trained specialists at the local level. For the roughly 47,000 State and collective farms there are only 15,700 agrochemists and 14,500 plant protection professionals.

Land Improvement

Pressure has built in recent years to reduce large State subsidies for land improvement construction. They amount to roughly 8-10 billion rubles per year, 15-18 percent of all agricultural investment. From 1970 to 1985, the area under irrigation grew by almost 10 million hectares, 94 percent of which were in the south of the USSR, but has since increased more slowly (table 13). The production returns to investments in land improvement have not been good. Soviet organizations responsible for carrying out land improvements face no competition and have not paid adequate attention to the quality of the systems they install. The biggest challenge of irrigated agriculture in the USSR concerns drainage facilities. Until now the construction of irrigation nets

Table 13--Irrigated and drained land, USSR

Year	Irrigated		Drained	
	Yearend	Commissioned	Yearend	Commissioned
Million hectares				
1970	11.1	.396	10.2	.815
1975	14.5	1.180	13.7	.982
1980	17.5	.650	16.9	.648
1981	18.0	.643	17.0	.696
1982	18.6	.637	17.5	.685
1983	19.1	.714	18.1	.728
1984	19.5	.676	18.6	.691
1985	20.0	.642	19.1	.693
1986	20.5	.614	19.5	.700
1987	20.5	.549	19.4	.633
1988	20.8	.403	19.8	.610
1989	21.1	.296	20.1	.514

outpaces the building of drainage infrastructure. The gap has grown each year until it has become a chronic problem of irrigated cultivation. Insufficiency or total lack of drainage that washes the fields of heavily mineralized mixtures of ground and irrigated water has resulted in secondary salinization of half the irrigated lands.¹⁷

Irrigated land commissioned in 1989 dropped 27 percent compared to 1988, drained land decreased 16 percent. No data on commissioning of irrigated and drained lands are available for 1990. One reason for the slowdown in new commissionings is the increasing share of resources spent on repairing and maintaining existing systems. Total agricultural land area is decreasing, in part because of the difficulty in expanding irrigated and drained land. Net losses due to urbanization, road construction, mining, and other uses equal 350-400 thousand hectares annually. Per capita land availability also declines because of the annual population growth of 2 million. In 1960, there was one hectare of agricultural land per capita, 0.85 hectares in 1980, and 0.75 projected for the year 2000.¹⁸

In many parts of the Soviet Union intensive crop cultivation cannot proceed without irrigation. Siberia and the northeastern parts of the country possess over 80 percent of all water resources. The republics of Central Asia and the Caucasus, as well as parts of the Central Black Soil Zone, southern Ukraine, and Moldavia are the most water-poor regions. But it is there that the most intensive water use in agriculture is in evidence. Soviet agriculture, the most water-intensive industry in the country, on the average loses in irrigation nets up to 20 percent of overall water intake. No improvement in the irrigation infrastructure is in sight, but in 1991 water use charges to State and collective farms were finally introduced.¹⁹

In the United States, where the arid area is smaller than in the USSR, irrigation is used on 18 percent of arable lands. In the Soviet Union only on 8 percent. Moreover, 40 percent of Soviet croplands are practically useless without irrigation. In the United States that number is only 11 percent. All water-logged agricultural lands in Finland, Sweden, and Holland have by now been drained. In Germany and the United States, 60 percent of the necessary drainage has been accomplished, in the Soviet Union less than 20 percent. In the United States, the total area of drained land is about 60 million hectares, in the USSR less than 20 million.²⁰

Ecological Impact and Food Safety

Soviet agricultural practices have contributed greatly to ecological deterioration. One hundred and thirteen million hectares of agricultural tracts, including 64 million hectares of arable land, are subject to water and wind erosion. Every year water and wind take nearly 100 million tons of humus and an enormous amount of

mineral nutrients out of the fields. Acidic and salinated soils account for over a third of both agricultural and arable land. Fifty one million hectares of arable land (23 percent) require liming. In spite of modern crop rotation practices, the underproduction of crops on these lands, converted to grain equivalents, amounts to 26 million tons.²¹

The now-abolished Ministry of Water Resources came in for criticism for building huge and inferior ameliorative systems, but it is precisely these systems that make up the bulk of construction activities of the new Ministry of Water Construction. This Ministry, though inadequately staffed with experts, undertakes the installation of gas pipelines, harbor facilities, ports, etc. The meliorators earn their keep by the amount of capital invested and not by the quality of their work.²² The Azov irrigation system, after 30 years in operation, is responsible for lowering the productivity of soil in Rostov Oblast by 20 percent. All the land there has been exposed to alkalization and salinization, and one-fifth of it has turned infertile.²³

Water contaminated with pesticides, copper, zinc, and nitrates, is being dumped into the Don River tributaries. The resulting water quality problems are severe. The Don's water is not safe for drinking. The content of copper in the water is 14 times above the maximum allowable concentration, of zinc 7 times, of nitrates 2 times, and of petroleum products 2 to 4 times. The Don's waters are rated as exceedingly dirty in terms of organic substances, and in the delta they are thought to be downright mutagenic. The DDT and its decomposition products are being found in the soil in Rostov and Volgograd Oblasts, in the Tsimlyan reservoir and in the Don delta.²⁴ Likewise, in Kherson and Nikolaev Oblasts in the southern Ukraine there is a ban on water use for irrigation from the Ingulets' irrigation network and from the Ingulets' River itself. Each liter of the Ingulets' water contains 1,000 milligrams of chlorides, which is ten times higher than the norm.²⁵

Ecological problems are also serious in many agricultural regions bordering on chemical, metallurgic, energy producing, and other industrial areas, as well as in the cotton-growing lands of Central Asia. Popular opposition has forced the closing in recent years of numerous agrochemical and other industrial enterprises that are particularly heavy polluters.

Soviet media are full of reports of ecological problems. According to *Sovetskaya Rossiya* (9/23/90), "a wide array of agrochemical facilities are waging an undeclared war on the population." For example, Rostov on July 9, 1990, and Tynda (in the Soviet Far East) on July 10, 1990, experienced fires that covered them with poisonous fog. There were spontaneous combustion incidents of the acid compound DP-2 that contains poisonous chlorine, at the agrochemical warehouses that failed to meet storage regulations for hazardous chemicals.

Until recently there also was no quality control of imported chemical agents. The first border monitoring station equipped with domestic and imported devices was set up in 1986. According to the journal *Zashchita Rastenii* (No. 10, 1990, p. 12), imported chemicals often arrive without appropriate documentation, specifications, and application manuals. In one case in April 1990, the Soviet Union took delivery of 800 tons of Syrian phosphate fertilizers containing uranium-238. About one-third of it was put into use in April and May of 1990.

Problems with food quality and food poisoning worsened toward the end of the 1980's.²⁶ In 1988, health officials banned the production and sale of unsafe food products on 27,000 separate occasions and 165,000 food samples failed to meet safety standards. A high concentration of nitrates was found in 13 percent of vegetables and fruits, including melons. Twenty percent of smoked meats, 33 percent of fish, 5 percent of grain, and 13 percent of meat and meat products were found to be contaminated with pesticides and carcinogenic nitrosamines. (Yuri Markish and Edward C. Cook)

USSR Agricultural Imports To Fall in 1991

Predicting Soviet agricultural imports will be more difficult in 1991 than any time in the last decade. The USSR has made major policy and program changes that will affect production and consumption of agricultural commodities. The changes relate directly to the agricultural policies and programs, general economic and political decisions, and foreign trade programs.

Either administratively or by allowing markets to function, the USSR is raising producer and consumer prices and changing relative prices throughout the economy. Republics and local areas are pursuing independent policies and attempting to wrest more control over domestic and international trade. The national Government is increasingly unable to coordinate national fiscal and monetary policies and programs to manage demand. International price developments, especially for energy and agricultural products, will change Soviet terms of trade. Finally, international political and trade policy changes in the Council for Mutual Economic Assistance (CMEA) and availability of exporter credit programs will affect the sources of the USSR's agricultural imports.

The national legislature discussed the most radical reform program to date in September 1990, but adopted a less detailed, more conservative plan in October. The October compromise maintains national supervision of the major hard currency exports, including energy and gold. At present, the national Government possesses the bulk of hard currency earnings. Such control is limiting individual republics' ability to finance agricultural imports.

Consumer price increases will cut excess demand for most agricultural commodities and possibly decrease current consumption. This will occur despite the Government's compensation programs and continued inability to control wage increases not backed by productivity gains. The positive effects of the producer price changes on production will be blunted by increased input prices, disinterest in monetary assets, and Government steps to limit losses for marginal agricultural areas and producers. Finally, the Government's continued interest in maintaining imports of capital and nonfood goods, coupled with a decline in export earnings, will keep up pressure to cut agricultural imports. Lower grain prices and subsidies offered by intensely competing exporters will help the USSR lower its agricultural import bill in 1991.

The net effect of the changes might result in a 15-20 percent decrease in 1991 agricultural imports from 1990's estimated \$19 billion (table 14 and figure 6). The decline will be larger if the revaluation of CMEA trade from its artificially inflated prices to world prices is fully accomplished. The decline in this forecast assumes that intra-CMEA prices will drop, but will not reach world

levels, especially for Cuba. For example, the 15-20 percent decline forecast builds in more than a 40-percent drop in the extremely high price that the USSR reports it pays for Cuban sugar. The forecast assumes, however, that the reported price for Cuban sugar will remain well above world prices.

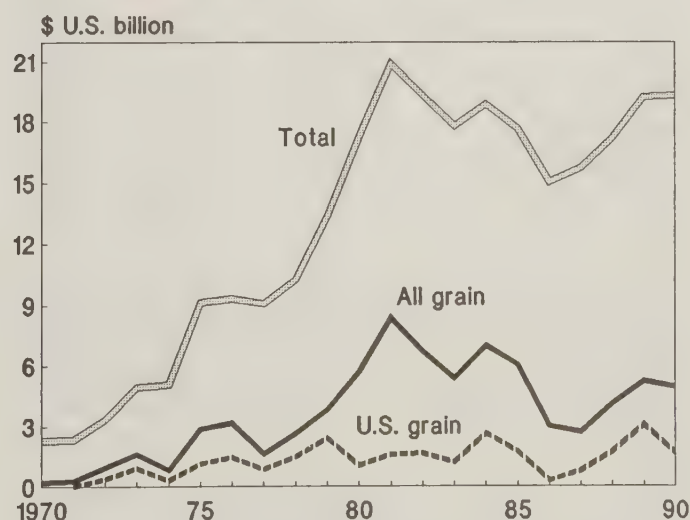
The change in intra-CMEA pricing is an important issue. Cuban sugar, at negotiated CMEA prices, accounted for about 25 percent of the value of Soviet agricultural imports. Several East European CMEA countries are

Table 14--Agricultural import summary, USSR 1/

Commodity	1988	1989	1990 2/
\$ Millions			
Grain and products	4,109	5,220	4,900
Sugar	4,573	4,603	5,100
Livestock and products 3/	2,693	2,857	3,300
Fruits, vegetables, and nuts	1,859	1,617	1,700
Coffee, tea, cocoa, and beverages	1,106	1,607	1,600
Tobacco and products	915	838	900
Oilseeds and oilmeal	1,129	1,235	700
Fats and oils	393	724	450
Cotton	170	134	150
Other	437	405	500
Total	17,384	19,240	19,300

1/ Derived from USSR official ruble data using exchange rates of \$1.65 for 1988 and \$1.58 for 1989.
2/ Estimates using an exchange rate of \$1.71 for 1990.
3/ Includes furs, raw hides, wool, and animal fats including butter.

Figure 6
USSR Agricultural Imports



important sources for Soviet meat, vegetable, and fruit imports. The price changes may affect trade volumes and sources as well as the values. Moving towards world prices will affect commodities and trading partners differentially and result in changed relative prices.

The grain import bill in 1991 is forecast to be down a third. The volume of grain imports will continue to fall from 1989's 38 million tons (tables 15 and 16). Imports are forecast to be up to 20 percent below 1990's 33 million tons. Savings will also come from lower grain prices forecast to average 25 percent below 1990. Imports decreased in the second half of 1990 as the Soviets gathered a near-record harvest and delayed purchases to win concessions from exporters. Preliminary figures for the first 9 months of 1990 show that the USSR paid much higher prices for grain than anticipated based on world and U.S. export prices. Final data might cause the current total and grain value estimates to be revised downward.

Table 15--Agricultural imports, USSR, by value

Commodity	1987	1988	1989
\$ Millions 1/			
Wheat	1,547.4	2,401.6	2,243.8
Barley	166.2	224.2	430.6
Corn	741.5	1,266.1	2,245.5
Other grain	3.8	7.5	28.0
Sorghum	3.8	5.7	10.3
Wheat flour	35.2	31.3	42.0
Rice, milled	188.5	172.2	220.2
Subtotal	2,686.4	4,108.6	5,220.4
Animals for slaughter	112.1	125.8	95.1
Breeding animals	24.8	23.4	22.9
Meat and meat products	1,387.6	1,208.0	1,150.0
Milk and milk products	103.7	107.7	170.4
Eggs and egg products	12.6	13.1	5.8
Animal fats including butter	212.8	333.7	413.1
Wool	641.9	823.3	940.2
Furs	3.6	2.7	8.5
Raw hides	4.7	4.6	3.5
Other animal products	48.9	50.2	47.4
Vegetables and potatoes	607.8	735.8	703.8
Fruits and berries	903.8	936.3	793.9
Nuts	175.4	186.5	119.7
Sugar, raw	4,833.7	4,539.4	4,443.9
Sugar, refined	7.7	33.4	158.9
Confectionery	53.7	59.4	80.0
Coffee, cocoa, tea	877.4	736.8	1,176.1
Spices	89.8	83.3	93.2
Beverages	392.8	369.6	430.6
Tobacco, raw	236.1	224.8	157.0
Tobacco products	695.5	690.7	681.3
Natural fibers	166.3	201.2	145.9
Oilseeds	384.3	312.6	260.0
Oilseed meal 2/	573.5	816.8	974.7
Tapioca	--	45.5	37.2
Vegetable oils	303.4	210.2	526.4
Technical fats and oils	145.5	182.5	197.7
Seeds and planting materials	196.9	213.0	143.9
Other	5.2	4.5	38.6
Total	15,887.9	17,383.5	19,240.1

1/ USSR official data converted at \$1.58 in 1987, \$1.65 in 1988, and \$1.58 in 1989. 2/ Estimates.

The value of sugar imports in 1991 might be lower than in 1990, despite a forecast increase in volume of imports. The USSR is moving toward valuing trade in sugar and other commodities at world prices. This will result in the USSR reporting lower prices in its trade data. Sugar was the biggest item on the import bill in 4 of the previous 5 years, including 1990. The 1990 sugar bill increased over \$0.5 billion and was much higher than early forecasts. The volume of raw sugar imports decreased 23 percent. The decrease in refined sugar imports likely was greater. However, preliminary Soviet data suggest that the price of Cuban raw sugar (the dominant export from Cuba to the USSR) increased about 15 percent. The always inflated price that the Cubans pay the USSR for massive oil and oil products changed little. This suggests that the Soviet subsidy to Cuba increased in 1990.

Feed protein imports should increase in 1991. A 1991 Council of Ministers decree on priority imports in the first quarter listed in order soybean meal, meat and meat products, sugar, and animal and vegetable oils.²⁷ Individual republics and the State poultry industry have reportedly gained a commitment from national authorities for increased imports. However, the national authorities may choose again in 1991, as they have in the past, to forego needed protein feed imports in favor of other agricultural and nonagricultural imports. Expenditures for oilseed and oilseed meals were at a 4-

Table 16--Agricultural imports, quantities of principal items, USSR

Commodity	1987	1988	1989
1,000 metric tons			
Wheat	18,097	21,180	14,186
Barley	3,020	2,365	3,576
Corn	9,238	11,426	18,984
Other grain	30	71	223
Sorghum	58	58	105
Wheat flour 1/	304	237	250
Rice, milled	598	498	640
Subtotal	31,345	35,835	37,964
Meat and meat products 2/	858	719	696
Shell eggs 3/	196	168	90
Butter	403	440	247
Wool, scoured	134	114	128
Vegetables, fresh	254	203	149
Vegetables, canned	422	447	349
Fruit, fresh	926	969	778
Fruit, dried	81	64	77
Sugar, raw	5,035	4,094	5,046
Sugar, refined	20	127	371
Coffee	58	50	113
Cocoa beans	148	138	179
Tea	135	133	215
Tobacco	54	49	38
Cotton lint	75	90	77
Tapioca	0	772	797
Oilseeds	1,927	1,397	879
Oilseed meal 4/	3,300	3,300	3,567
Vegetable oil, edible	825	367	1,088

1/ Flour in wheat equivalent at 72 percent. 2/ Does not include live animals. 3/ Million pieces. 4/ ERS estimate.

year low in 1990. The Soviets imported 20 percent less oilseed meal in the first quarter of 1990 and 30 percent less in the second quarter. During the first half of 1990, they increased imports of grain, and to an even greater extent, imports of nonfood goods. In the third quarter, oilseed meal import expenditures were down 77 percent (over \$100 million) from 1989's third quarter. During this same quarter, high oil prices helped raise Soviet exports to OECD countries almost \$2 billion over the same quarter in 1989.

Nonfood Imports Get Higher Priority

Soviet exports did decline in 1990 and the USSR ran a negative trade balance in total. However, the USSR's distorted trading arrangements make looking behind the total numbers imperative. Soviet hard currency exports and imports increased in 1990. Furthermore, the Soviets are putting higher priority on nonfood imports. Soviet hard currency grain imports in 1990 accounted for about 10 percent of total hard currency imports, down from an average of 20 percent in 1980-85. The share of total agricultural hard currency imports in 1990 was perhaps 20-25 percent, well below the peak of 42 percent in 1981.

The 8-billion-ruble decline in exports to the socialist countries paralleled the 8-billion-ruble decline in total exports in 1990 (table 17). The Soviets began to cut exports to CMEA and other allies, in ruble terms, as early as 1988. With the change in the political situation in 1989, the decline accelerated.

The USSR viewed the positive trade balance that it had run with Eastern Europe and other allies from at least 1980-87 as a liability. The USSR provided oil and other natural resources to them and received inferior capital and consumer goods in return. To quote one Western

Table 17--Foreign trade, USSR

Direction	1988	1989	1990
Billion rubles 1/			
Exports to:			
World	67.2	68.7	60.6
Socialist countries 2/	42.9	42.2	34.1
Western industrialized countries	14.7	16.4	17.4
Developing countries	9.6	10.1	9.1
Imports from:			
World	65.0	72.1	70.6
Socialist countries 2/	43.4	44.6	43.6
Western industrialized countries	16.3	20.5	20.2
Developing countries	5.3	7.0	6.8

1/ At the USSR official exchange rate, a ruble equaled \$1.65 in 1988, \$1.58 in 1989, and \$1.71 in 1990. 2/ Includes Eastern Europe, Cuba, Mongolia, North Korea, PRC, and Vietnam.

Source: *Ekonomika i zhizn'*, No. 5 (1991).

analyst, "The Soviets are engineering a collapse of CMEA trade in an effort to take advantage of more favorable terms of trade with market economies and to discipline their East European trade partners."²⁸

The cuts occurred as the USSR and East European countries began serious negotiations about changing the basis for trade. In early 1990, the USSR proposed that in 1991 the countries would use current world prices instead of negotiated prices. Convertible currencies, not the artificial transfer ruble, are supposed to be used to clear trade balances.

The USSR earns hard currency through exports to OECD countries. Soviet exports to them increased by a record \$3.9 billion in 1990 to a record total of almost \$30 billion. The USSR increased oil exports to the West and further benefited from the high oil prices in the second half of 1990. By the end of the year the USSR cut its trade deficit with the OECD countries by \$2 billion--30 percent. The USSR accomplished this despite increasing imports from these countries. Imports from OECD countries rose by \$2 billion to a record \$35 billion, with little or no net increase in hard-currency food imports from the West.

The Soviet agricultural import bill in 1990 was about the same as in 1989. The bill would have fallen except for the large increase in already inflated Cuban sugar prices.

In the first 9 months of 1990, compared with the same period of 1989, the USSR increased imports of machinery and transport equipment from all sources almost \$4 billion, including more than \$3 billion in calculating and office equipment. Over \$2 billion of the total increase was from the West. A later report showed imports of machinery and transport equipment for the entire year up over \$6.5 billion from 1989. Data on the types and sources were not available in that report.

The USSR increased imports of a variety of non-medicine, nonfood consumer goods by over \$1.5 billion in the first 9 months of 1990 compared with the same period in 1989. For example, cosmetics imports increased over \$300 million, silk and similar synthetic fabrics \$260 million, and leather footwear \$320 million. Although the USSR imported 20 billion more cigarettes (a 50 percent increase) during the period, it made such good deals that the total value declined.

The aggressive import programs in 1988 and 1989 included an additional \$3.5 billion for agricultural goods, but \$16 billion for other goods. Thus, nonfood imports largely explain why the USSR went from an \$11.5 billion trade surplus beginning 1988 to more than a \$5 billion deficit entering 1990.

Great terms of trade for agricultural imports in the second half of 1990 did not entice the USSR (figure 7).

In October 1990, the USSR had to sell fewer barrels of oil for a ton of grain than at any time since 1982, and probably the least ever. The Soviets, instead, as they harvested their oilseed crops and near record grain crop, delayed purchases. With much publicity about the disruption in the food market in Moscow and Leningrad, the USSR delayed contracting for food imports while rumors about credit offers proliferated. As credit enticements finally materialized, the USSR signed contracts, some at record pace. Once the details of the \$1 billion U.S. Commodity Credit Program's GSM-102 program were set in January 1991, the USSR quickly resumed contracting from the United States.

Credit is Fungible

Some Western and Soviet analysts argue credit and other aid for the USSR could delay economic reform. Aid could provide a crutch for the present system and lessen the need for thorough restructuring. Others argue that aid would buy the Government time to complete reforms. One clause in the October reform program shows the Government's desire for long-term loans at preferential rates from capitalist countries.

The number of countries offering and the variety of credit and other aid programs offered to the USSR increased in late 1990. Outright donations of foodstuffs and money for foodstuffs were small compared to the size of the Soviet economy and to other types of offers. About 130,000 tons of food arrived as of March 14, 1991. The other offers involved loans, credit guarantees, and, in some cases, deals touted as aid, but which looked very similar to normal commercial arrangements. Some offers were tied to particular goods and sources, but others were not. Germany, Korea, Italy, Saudi Arabia,

and Kuwait offered some of the biggest programs. Perhaps the largest offers explicitly involving agricultural products were direct donations from Germany and credit to buy products from the former East Germany. The United States, France, Canada, Australia, and the European Community offered large agricultural credit packages.

Credit programs often involve subsidies, directly by extending low cost loans, or indirectly, by guaranteeing repayment to the lender. Theoretical and empirical analyses suggest that credit programs usually have only small benefits in expanding exports and generally reduce the donor's overall welfare.²⁹ Furthermore, credit in one area frees resources for purchases in other areas, even if a direct switching of checks from the financial institutions does not occur. The exporters' programs likely have little effect on the overall level of Soviet agricultural imports, but can affect exporters' market shares.

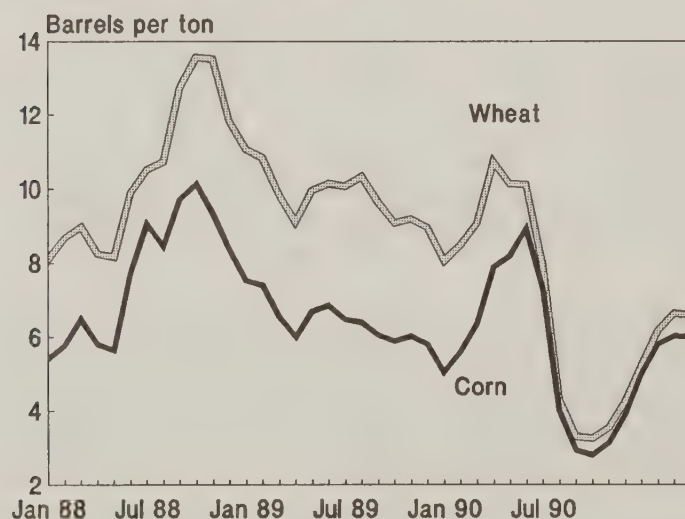
Can the USSR Repay?

The USSR is the world's largest country, more than twice the size of either the United States or China. The USSR population of 290 million, however, is only about 15 percent bigger than the United States'. The USSR contains vast natural resources, including some excellent agricultural land and an educated population, that are not used efficiently under the centrally planned system. The USSR is the world's second largest gold producer. It maintains gold reserves that valued at current prices equal \$25 billion, despite annual sales of \$3-4 billion over the last 5 years. In addition, it has perhaps \$7-8 billion in exchange reserves.

The USSR is the world's largest natural gas producer (output about equals OECD's combined total) and production is increasing. It remains by far the world's largest crude oil producer, despite a 6 percent decline in 1990 production. A Soviet analyst emphasized great potential for using crude oil resources, but said that enhanced recovery methods would take several years to be implemented.³⁰ He and other analysts, however, emphasize that energy conservation measures like those in the West would extend supplies. The new higher domestic energy prices, according to one Soviet analyst, should free up 1 million barrels per day for export. A key variable affecting the USSR economy remains future international gold and energy prices.

Effective resource use is increasingly imperative for the USSR to be able to service and retire debts run up by its ambitious imports from the West. It allowed net hard currency debt to reach \$45-50 billion by the end of 1990. However, the USSR debt must be put in perspective. Poland's net debt was estimated at \$38 million in mid-1990, before the West's major forgiveness in early 1991. Poland's area is 1 percent of the USSR, its population 13 percent.

Figure 7
Grain-Oil Terms of Trade



The USSR reform plan, agreed to in October 1990, does not set a framework for a breakthrough in economic performance. The plan has the weaknesses and strengths of a compromise. It proclaims the commitment to a market-based economy. However, it delays, or in some cases avoids altogether, the measures needed for change. The compromise is an inadequate blueprint for invigorating the Soviet economy and, in fact, might make the situation worse. The chance of repayment of long-term loans depends upon whether later proposals will provide a framework for a coherent economic system for the nation and individual republics. The USSR has great reserves to sustain its economy as it reforms, but the reform process will be complicated for this large, diverse society.

Government Trade Controls

The ability of the economy to function efficiently and to finance repayment of debt is not the only factor affecting USSR payment performance. Payment performance also depends on who in the country is responsible for payment and whether they have access to resources. This issue of control spans not only the national versus republic authority, but control by local authorities, firms, and individuals. Entering 1991, the ruble remains, by USSR choice, largely inconvertible. The national Government still controls the disbursement and allocation of most foreign exchange earnings.

The Government continues to affect enterprises' export behavior through control of export revenues. The 1986 reform allowed enterprises to keep a share of foreign currency earnings. Retention rates ranged from as high as 80-90 percent for favored machinery enterprises to as low as 2 percent for other commodities. The retention rates were low for oil and other natural resource exports. The industries had less effect on quality and competitiveness of these homogeneous commodities and also were the primary foreign exchange earners. With few Soviet exports involving machinery, the State retained control of most hard currency earnings. The retention rates also varied by whether hard or soft currencies were involved. The Government reallocates the retained currencies to finance equipment and consumer imports, including food.

The Government narrowed the retention rate differentials in late 1990. The rates listed in the summary ranged from 25 to 70 percent.³¹ The Government, however, effectively cut the rates across the board in November 1990 as it sought additional resources to pay the mounting hard currency debt.³² The Government requires that exporting firms sell 40 percent of their foreign currency earnings to the USSR Bank for Foreign Economic Activity at a commercial rate of 1.8 rubles per U.S. dollar. These funds are to be used to reduce the foreign currency debt. (The earnings of joint ventures are excepted.) Now the exporting industries retention rates apply to the remaining 60 percent,

making the effective industry retention rates 15-42 percent.

Firms must sell 90 percent of the remaining 18-45 percent of total foreign currency earnings (100 percent minus 40 percent minus 15-42 percent) to the Union-Republic Foreign Currency Fund. This fund finances grain, oilseed, and livestock imports along with other goods. Firms must sell the final 10 percent to the foreign currency funds of union republic and local soviets. This makes the effective rate of retention of union republic and local soviets roughly 2-4.5 percent. The 1988 decree had provided a 5 percent transfer of foreign currency earnings of enterprises under national and republic jurisdiction to "local (regional, territorial, and republic) soviets."

Various Soviet reports have put crude oil exports in 1991 at 60 million tons versus about 125 million tons in 1990. This apparently applies to national-level controlled exports. The industry retention rates for crude oil sales are now 40 percent for the 60 million tons exported under national control and 30 percent for the anticipated 12.5 million tons exported under local and industry control. A rate of 35 percent applies to oil products. The oil industry may be faring better than in the past to stimulate production and slow the decline in exports. However, exporters of many other commodities face decreased incentives because of the November 1990 decree. Overall incentives reportedly will be up 150 percent compared with 1990. Firms will keep an estimated 22-23 percent of foreign currency earnings. The rest is sold to government entities in exchange for rubles.

Control of foreign currency remains in contention and will continue to while the USSR is in the process of change. The drama has been played out to some extent regarding Russia's inability to get the Union Bank to guarantee availability of foreign currency funds to pay for cigarette imports. Russia produces about 90 percent of Soviet oil and 75 percent of its natural gas and likely as high a share of gold. Russia accounts for nearly 80 percent of Soviet exports. The republic's governments and firms potentially stand to benefit most from the reallocation of foreign currency earnings from national control.

In line with the new measures to raise Government currency revenues, the Government stopped barter trade by commercial firms and many State sector firms in 1991.³³ This ban apparently runs counter to earlier expectations that firms could work out barter trade, especially to replace the declining Government-managed trade among CMEA countries. These new deals likely relied on barter. The East Europeans have trouble raising hard currency. The USSR Government highly taxes foreign currency earnings of its exporters. For example, the Czech arrangement to barter goods for Tyumen oil have reportedly been stopped.³⁴

Republics and other jurisdictions enact legislation conflicting with national laws in the trade and other areas. For example, an Uzbek resolution in October 1990, said that exporters must sell 25 percent of foreign currency earnings to the Union budget, 25 percent to the Uzbek foreign currency fund, 10 percent to the reserve fund of the Uzbek Council of Ministers, 15 percent to local soviets, and 25 percent to the exporting enterprise.

The USSR also affects firms' interests in exporting through ruble exchange rates. Through 1990 it used a set of highly differentiated rates. The Government used perhaps 2,000-4,000 exchange rates (differentiated by goods and ministries) when settling with domestic enterprises. The differentiated rates further complicated efforts to measure comparative advantage across industries and enterprises. In November 1990, the Government established a single, more realistic commercial exchange rate for each convertible currency.³⁵ Enterprises now must sell foreign currency earnings to the various government organizations at this rate, set at 1.8 rubles per dollar in late 1990.

The new commercial rate is about 70 percent lower than the official rate. However, the change faced by various industries is different depending upon which of the vast array of rates it faced before November. In general, a devaluation should make exports more attractive. The effect of making imports more expensive would be greater for enterprises which finance their own imports, rather than for national foreign trade organizations and enterprises which receive allocations.

The Government devalued the tourist exchange rate from 1 ruble per \$1.60 to 1 ruble per \$0.16 on November 1, 1989, in an effort to compete with the black-market. It also started hard currency auctions in November 1989. The sales rates have reached well over 20 rubles per \$1. These rates, while in line with the black-market rates, are likely too low, caused by the thin market. However, the Government again devalued the tourist exchange rate in April 1991 to 1 ruble per \$0.036 or 27.6 rubles per dollar. A new law on foreign currency regulation that became effective April 1 extends rights to trade in foreign currencies. Such expanded trade should result in a more realistic exchange rate for the ruble. The expanded avenues for change should facilitate the reallocation of foreign currency among firms and government units within the economy.

Import and export tariffs become more important instruments for controlling trade as the USSR has allowed firms other than national foreign trade organizations to trade internationally. An August 1990 Council of Minister Resolution set tariff rates for imported goods which the 1990 State plan did not cover. The high rates were different for imports from CMEA versus non-CMEA countries.

A January 1991 resolution set new import tariffs.³⁶ Summary reports suggest that the tariffs will apply to goods imported by government or nongovernment organizations. Dry milk is listed under the 20-50 percent tariff group. Ground coffee, animal fat, oranges, meat and meat products, and non-American cigarettes are in the 51-100 percent category. Cocoa beans and bananas are in the 101-250 percent group, and lemons, grapefruit, tangerines, and packed tea the 251-500 percent class. American cigarettes are in the 800-1,000 percent category. The resolution also provides for export taxes (these are separate from the hard currency sales to the Government) for the first time.

The USSR is trying to transform foreign trade organizations into independent brokers. They will still be important intermediaries for large purchases by the national Government which retains the bulk of export earnings.

Status of CMEA Trade

The changed political situation in Eastern Europe and the changed terms of trade among bloc countries has hastened the demise of the Council of Mutual Economic Assistance (CMEA). These changes are important to USSR agriculture. Several East European CMEA countries have been major sources for Soviet agricultural machinery, meat, vegetable, and fruit imports and Cuba is the dominant supplier of Soviet sugar. The price changes will affect trade volumes and sources as well as values. Moving towards world prices will affect commodities and trading partners differently and change relative trade prices.

CMEA, formed in January 1949, developed into an organization to integrate economic development and coordinate trade among the member countries. The members of the disintegrating council are Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Cuba, Vietnam, and Mongolia. East Germany was a member until unification with West Germany.

Although several East European countries were early proponents of changing CMEA's terms of trade, the USSR took the lead in late 1989. The USSR proposed that CMEA trade use current world prices with payments in convertible currencies by January 1991. This arrangement would replace trade based on prices related to a 5-year moving average of world prices, with accounting done using the transferable ruble. This ruble, developed in 1963, is not convertible in a financial or commodity sense.

Negotiations concerning implementation of these changes continued, with the USSR maintaining pressure for the change. In June 1990, USSR Vneshekonombank forbade Soviets from using transferable rubles in trade with

Hungary, East Germany, and Yugoslavia. USSR Gosbank also advised CMEA's main bank that it would withdraw on January 1, 1991, effectively ending USSR use of the transferable ruble.

A September 1990 report said that Hungary fully agreed to the change. Bulgaria, Czechoslovakia, and Mongolia were proposing that currency and intergovernmental agreements continue for most important goods. Poland and Cuba were making other proposals. In April 1991, the Polish Prime Minister said that the "main reason for the difficulties in Polish-Soviet economic cooperation stems from the Soviet side. For it is the USSR which insisted on transfer to trading with mandatory handling of accounts in freely convertible currency, something that neither side was ready for."³⁷

A January 1991 meeting of the CMEA executive committee reaffirmed the decision to transfer trade among the member states to a hard currency basis using current world prices. The bilateral trade pacts, which continue between these countries, now cover smaller portions of trade. The executive committee also discussed the draft rules and budget during a transitional period as a successor to CMEA was formed. The new organization's tentative name was the Organization for International Economic Cooperation. However, the 46th session of the CMEA, which was to meet in late February 1991 to confirm a new charter and name, was postponed. Later meetings are expected to formally terminate the council whose functions, in fact, have ended already.

Commodity prices used for CMEA trade were linked in the mid-1970's to 5-year moving world-price averages. Intra-CMEA trading prices have been different than the prices of CMEA trade with the West and world prices. The distorted prices have complicated both Western and CMEA analyses of the gains from trade among the CMEA countries and have led to debates about USSR trade subsidies to other members. The distortions have complicated analysis of Soviet agricultural, as well as other, trade. The terms of trade for USSR agricultural imports compared with USSR crude oil exports show some of the differences in CMEA versus non-CMEA trade.

Cuban sugar, at negotiated CMEA prices, accounted for about 25 percent of the total value of Soviet agricultural imports. The Cuban share of Soviet agricultural trade would have been much lower if world prices, rather than distorted CMEA valuations, were used. The Soviets reported paying Cuba 7 times the price it paid other exporters for sugar in 1988. At the same time, the Soviets reported charging Cuba 2.5 times the world price of oil. Looking at the sugar/oil terms of trade, the USSR shipped Cuba about 2.5-3 times more oil for a ton of sugar than it would have had to sell in the West to buy a ton of sugar in the West (figure 8).

The USSR might have underpaid Hungary slightly for wheat, using the same comparison, although quality variations might explain part of the difference (figure 9). The price distortions are more difficult to measure for less homogeneous agricultural products, as well as industrial and consumer goods. For example, understanding the differences in red meat prices depends not only on the type of red meat, but also the cut and packaging (figure 10). Without a good surrogate for value on the export side, understanding the magnitude of distortion in pricing USSR cotton exports to CMEA countries is more difficult. The USSR reported that CMEA members paid about 50 percent more for cotton in 1988 (table 18).

Figure 8
Oil the USSR Sold to Buy Sugar from These Countries

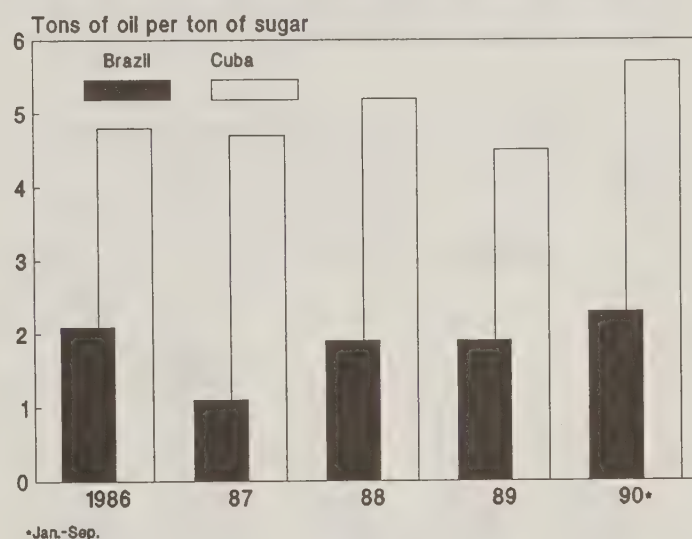
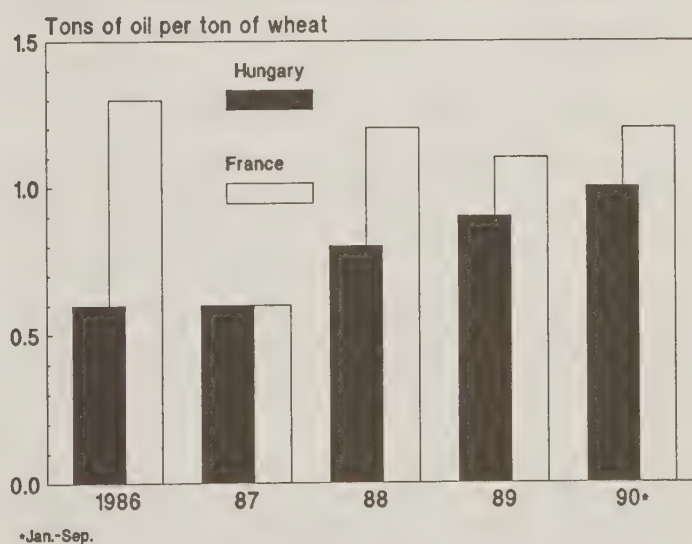


Figure 9
Oil the USSR Sold These Countries to Buy Their Wheat



The artificial prices distort the magnitude of CMEA trade. However, even with adjustments, the CMEA countries would have been major trading partners of the USSR. Natural resources dominate Soviet exports to CMEA countries and manufactures and consumer goods dominate Soviet imports from them.

The CMEA countries supplied 61 percent of USSR imports in 1988 (table 19). This included 41 percent of all agricultural imports, largely because of costly sugar imports from Cuba. CMEA countries are not important sources of grain or oilseed products. However, the East European CMEA members alone provided about a third of agricultural imports, excluding grains and oilseeds and tropical products such as sugar, coffee, tea, and cocoa. Hungary and Romania supplied 42 percent of red meat imports and 87 percent of poultry imports in 1988. The CMEA countries in total supplied 84 percent of fresh vegetable imports and almost 60 percent of fresh fruit

Figure 10

Oil the USSR Sold These Countries to Buy Their Meat

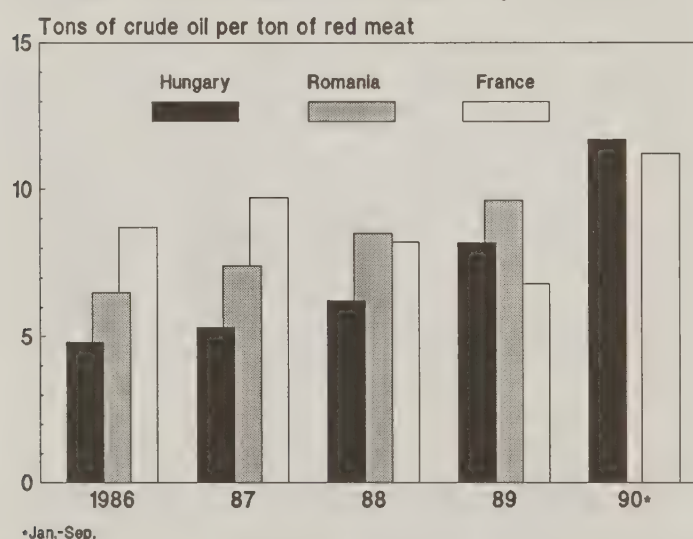


Table 18. Cotton export unit values reported by the USSR

Country	1988	1989	Jan.-Sep. 1990
Rubles per ton			
Bulgaria	1,323	1,303	1,352
Czechoslovakia	1,307	1,289	1,290
GDR	1,298	1,269	1,256
Hungary	1,352	1,268	1,298
Poland	1,296	1,286	1,293
Romania	1,334	1,403	1,436
Cuba	1,275	1,345	1,329
North Korea	1,318	1,387	1,353
Vietnam	1,329	1,387	1,332
France	816	715	935
Indonesia	591	532	615
Italy	905	899	958
Japan	984	857	1,041

imports (table 20). The European CMEA countries supplied 66 percent of the food-industry-equipment imports and 97 percent of the agricultural-machinery-related imports in 1988.

In 1988, 58 percent of total USSR exports were to CMEA countries. Cotton was the only important domestically-produced agricultural export from the USSR to CMEA countries. The USSR, one of the world's largest cotton exporters, shipped CMEA countries 70 percent of its export volume in 1988.

Irrespective of any change in trade volumes, denominating CMEA trade at world prices would change Soviet reported overall trade values. Moreover, since the price changes will differ by commodity, the changed relative prices will affect import decisions about various commodities. Western, Soviet, and some East European experts expect the USSR to have a net gain from the new arrangements. They believe that CMEA countries will have to discount their export prices relatively more

Table 19--Imports from CMEA countries, USSR

Country/Trade	1988	1989	Jan.-Sep. 1990
Billion rubles			
Total imports	65.040	72.137	53.153
Total imports from CMEA	39.830	40.588	29.503
Bulgaria	6.873	7.307	4.753
Czechoslovakia	6.817	6.610	4.525
GDR	7.024	7.175	5.887
Hungary	4.943	4.813	3.150
Poland	7.109	7.410	5.660
Romania	2.431	2.489	1.294
Cuba	3.837	3.867	3.452
Mongolia	0.406	0.397	0.306
Vietnam	0.389	0.520	0.478
Total agricultural imports	10.536	12.177	9.178
Agricultural imports from CMEA 1/	4.352	4.106	3.930
Bulgaria	0.535	0.489	0.215
Czechoslovakia	.024	.024	NA
GDR	NA	NA	NA
Hungary	0.739	0.653	0.409
Poland	0.090	0.049	0.041
Romania	0.136	0.078	NA
Cuba	2.676	2.656	3.199
Mongolia	0.085	0.080	0.020
Vietnam	0.066	0.078	0.047
Total agricultural machinery and equipment imports	1.177	1.024	0.638
Agricultural machinery and equipment imports from CMEA 1/	1.139	0.977	0.604
Bulgaria	0.178	0.191	0.127
Czechoslovakia	0.181	0.130	0.062
GDR	0.489	0.467	0.347
Hungary	0.116	0.089	0.016
Poland	0.097	0.075	0.041
Romania	0.078	0.025	0.011

NA = Not available.

1/ Sum of identified commodities. Total may be higher, especially for preliminary 1990.

Table 20--Major suppliers of selected agricultural goods to the USSR in 1989

Commodity	Quantity	Supplier and share
	1,000 metric tons	(Percent)
Wheat	14,186	United States (38), EC (26), Canada (17), Hungary (8), Argentina (4), Australia (2), and others (5)
Coarse grains 1/	22,888	United States (76), EC (14), China (5), and others (5).
Sugar 2/	5,013	Cuba (69), Thailand (12), Australia (5), Brazil (4), Mexico (3), and others (7)
Fresh/frozen red meat	406	China (31), France (17), Hungary (16), New Zealand (9), Romania (8), Mongolia (7), and others (12)
Poultry	136	Hungary (59), Bulgaria (12), Romania (4), and others (25)
Butter	247	New Zealand (12), Netherlands (12), Ireland (12), FRG (11), Finland (3), Hungary (2), Belgium (2), France (2), Uruguay (2), and others (42)
Wool, scoured	128	Australia (64), New Zealand (22), Uruguay (5), Argentina (4), and Mongolia (5)
Soybeans	872	China (57), United States (42), and others (1)
Soybean meal	3,567	Argentina (46), United States (41), Brazil (13)
Fresh fruits and berries	778	Cuba (24), Hungary (23), Egypt (11), China (11), Bulgaria (6), Turkey (4), Poland (3), Spain (2), Greece (2), and others (14)
Dried fruit	77	Afghanistan (29), Iran (22), Romania (9), Turkey (6), Cyprus (5), Yugoslavia (5), and others (24)
Fresh vegetables	149	Bulgaria (44), Poland (17), Vietnam (10), Egypt (7), Romania (7), and others (15)
Cotton lint	77	China (39), Bangladesh (32), Syria (16), and Egypt (13)

1/ Includes corn, barley, oats, rye, and sorghum. 2/ Total Soviet sugar imports in terms of refined value converted at 0.92.

than the USSR will drop its energy and other resource export prices. Some estimates over the last several years put the total gain to the USSR from trade under the new terms in the \$5-15 billion range.

The lack of Western markets and the need to finance energy imports from the USSR because of network ties might increase the volume of exports by CMEA members to the USSR in the mid-term. The USSR is in a better position to find Western buyers for its raw material exports. East European manufactured goods are generally not competitive in the West. Furthermore, they face many Western trade barriers.

The dramatic political changes in Eastern Europe in 1989 changed CMEA trade patterns that year. The changes accelerated in 1990. The partial decentralization in Soviet trade control and the regionalization taking place in the USSR also have affected trade, complicating the analysis of the effects of the CMEA-related changes.

The USSR increased equipment imports for the food industry from non-CMEA suppliers at a faster rate than from CMEA sources in both 1989 and 1990. The decline

in agricultural equipment and parts sales to the USSR from Eastern Europe is hampering domestic production, deliveries, and repairs of agricultural equipment. Still, the USSR did not move to alternative suppliers as Eastern Europe claimed a 95 percent market share in January-September 1990. As with other export goods, Eastern Europe will possibly be forced to step up shipments to the USSR in the mid-term.

The share of agricultural imports from the East European CMEA countries fell 27 percent in 1989, with lower sales by every country. Hungarian exports, the largest agricultural shipments from Eastern Europe to the USSR, fell 12 percent in 1989. Romanian agricultural exports, the third largest, fell 42 percent. Bulgarian exports, the second largest, fell 9 percent. Both Romanian and Bulgarian exports likely fell further in 1990.

These declines led to increased Soviet animal product purchases from the West and Western hopes for increased fruit and vegetable sales. However, the new terms of trade might eventually force the East European and other CMEA countries to increase agricultural export volumes to the USSR to pay for energy products.

Data for the first 9 months of 1990 showed a 5 percent increase in Hungarian agricultural exports to the USSR after falling in 1989. Poland might become an important source. The agricultural exports listed increased 68 percent in the first 9 months of 1990 from a low level in the same period in 1989. The volume of Cuban fresh fruit shipments to the USSR was up 53 percent in the first 9 months of 1990. The former East Germany might begin significant agricultural exports to the USSR to prop up its agriculture after the disruption of unification.

Soviet cotton exports increased in 1989 after the high 1988 harvest, with exports to non-CMEA countries increasing faster. CMEA's share of the volume of exports fell from 70 percent in 1988 to 64 percent in 1989. The smaller 1990 crop saw exports in the first 9 months of 1990 down 13 percent compared with the same period in 1989. The decline was due to a 60 percent decrease in exports to the West. The share of exports to CMEA countries was back to 70 percent in the first 9 months of 1990. Almost no cotton was exported during the last quarter of 1990, usually a high quarter for exports.

According to reports for the first quarter of 1991, overall Soviet foreign trade fell a third from the same time in 1990. Important factors included the decreased rights of Soviet exporters to retain foreign currency, new export and import taxes, and the decreased output of the USSR economy, particularly in the energy area. The changing terms of trade with the CMEA countries likely was another important factor contributing to the decline. The more realistic alignment in terms of trade among the CMEA countries, however, should ultimately provide a better basis for export and import decisions by the governments and firms of the countries involved.

U.S. Exports to USSR Decline

U.S. agricultural exports to the USSR likely will fall 20 percent in 1991 from 1990's \$2.3 billion if two conditions hold (table 21). The conditions are that total USSR grain imports must be about 10 percent lower and the U.S. volume share of the Soviet grain market must remain near 1990's 40 percent. The United States used \$1 billion in export credits and \$87.5 million of export bonuses in the first part of 1991 to compete with terms offered by France, Canada, and Australia. Almost half of the possible 20 percent decline in U.S. farm exports to the USSR is due to lower wheat prices. The unit value of Soviet wheat imports from the United States in 1990 was \$147 per ton. Prices for U.S. wheat sales to the USSR in the first quarter of 1991 averaged about \$80 per ton, as world prices fell and U.S. bonuses per ton increased.

U.S. agricultural exports to the USSR in calendar 1990 declined 37 percent, from 1989's record \$3.6 billion (figure 11). A \$1.4 billion drop in grain exports more

than accounted for the \$1.3 billion total decline. The value of corn exports fell almost 50 percent because of the volume decline. The value and volume of wheat exports fell 30-35 percent. The volume of soy products increased, but 20-percent lower prices cut the value of exports. Grain and soy product exports accounted for 90 percent of U.S. agricultural exports to the USSR, despite large sales of poultry and butter.

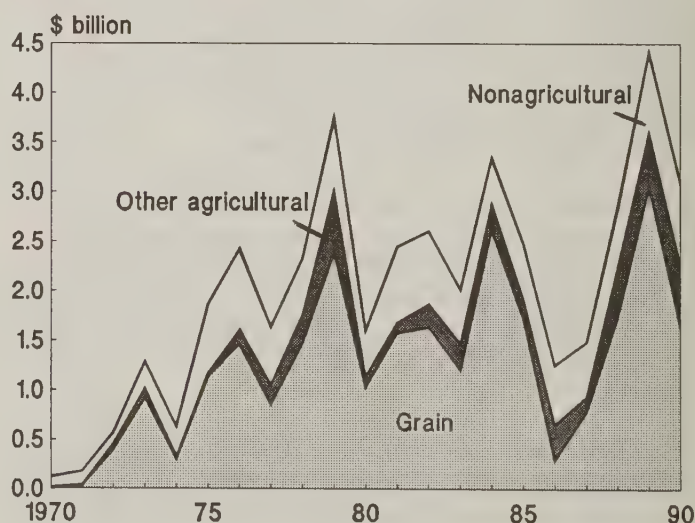
Table 21--U.S. agricultural exports to the USSR 1/

Commodity	1988	1989	1990
\$ Millions			
Wheat	755.1	827.1	542.5
Corn	961.8	2,135.4	1,094.9
Sorghum	13.4	93.4	--
Soybeans	163.6	82.3	61.1
Soybean meal	246.3	388.6	337.7
Poultry meat	--	9.4	97.6
Butter	--	10.8	57.3
Fruits, nuts, and berries	46.8	19.5	15.7
Cotton	31.0	--	1.3
Tallow, inedible	26.4	26.0	22.6
All other	7.7	4.4	30.9
Total	2,252.1	3,596.9	2,261.6
1,000 metric tons			
Wheat	8,036.0	5,342.7	3,690.4
Corn	8,521.7	18,566.1	9,426.4
Sorghum	126.5	845.5	--
Soybeans	777.6	296.6	275.4
Soybean meal	1,122.0	1,417.9	1,568.4
Poultry meat	--	12.2	137.5
Almonds, shelled	15.7	7.2	5.0
Cotton, excluding lint	21.8	--	1.0
Tallow, inedible	65.0	77.3	67.8

-- = None or negligible.

1/ Includes transshipments through Canada.

Figure 11
U.S. Exports to the USSR



The U.S. share of Soviet agricultural imports fell to 12 percent, in part because of lower Soviet grain purchases and higher nongrain expenditures, especially for high-priced sugar from Cuba (figure 12). The U.S. value share of Soviet grain imports was lower because of the high prices the USSR reported for its total grain imports. U.S. nonagricultural exports to the USSR changed little (table 22). The USSR share of the value of 1990 U.S. corn exports fell sharply, but the share of wheat increased (figure 13).

Table 22--U.S. trade with the USSR

Year	U.S. exports		U.S. imports	
	Total	Agricultural	Total	Agricultural
\$ Millions				
1972 1/	572	459	88	4
1973 1/	1,287	1,017	204	5
1974 1/	631	324	335	9
1975 1/	1,871	1,170	243	7
1976 1/	2,424	1,605	214	8
1977 1/	1,637	1,053	221	11
1978 1/	2,328	1,765	529	12
1979 2/	3,749	3,000	873	15
1980 2/	1,601	1,138	432	10
1981 2/	2,450	1,685	357	12
1982 2/	2,605	1,871	229	11
1983 2/	2,002	1,473	341	10
1984 2/	3,343	2,878	556	11
1985 2/	2,460	1,923	407	9
1986 2/	1,257	658	557	17
1987 2/	1,492	938	408	22
1988 2/	2,849	2,246	564	19
1989 2/	4,412	3,597	691	20
1990 2/	3,092	2,262	1,032	17

1/ Total and agricultural exports adjusted for grain and oilseed transshipments through Canada, West Germany, Belgium, and the Netherlands. 2/ Total and agricultural exports adjusted for grain and oilseed transshipments through Canada.

U.S. agricultural imports from the USSR fell 14 percent in 1990 to \$17 million (table 23). The United States ended its 36-year ban on mink and several other furskin imports from the USSR in 1988. The United States had permitted sable imports. Despite fears by some about the Soviets flooding the U.S. market, furskin imports continued to fall in 1990 and were only about half 1987's record \$19.85 million.

The pace of sales in the 1990/91 marketing year was off to a slow start as the Soviets anticipated a large grain harvest and campaigned for concessionary terms in the competitive agricultural export market. Although many speculated that the ability to pay was the reason for the delay, Soviet data show that the USSR maintained high levels of nonagricultural imports from OECD countries during the second half of 1990. The USSR could delay contracts because of the near record harvest and the almost 40 million tons of grain stocks built since 1982 according to USDA estimates. The USSR did not fulfill the terms of the interim grain agreement for wheat for 1989/90 (table 24).

On June 1, 1990, the United States and the USSR signed a third agreement, which extends from January 1, 1991,

Table 23--U.S. agricultural imports from the USSR

Commodity	1988	1989	1990
\$ million			
Casein and mixture	0.8	0.5	0.4
Furskins	16.8	13.8	9.6
Wool	0.2	1.5	--
Other animal products	0.2	0.2	4.9
Cotton (excluding lint)	0.1	2.8	--
All other	0.7	1.1	2.3
Total	18.8	19.9	17.2

-- = negligible or none.

Figure 12
U.S. Share of Soviet Imports

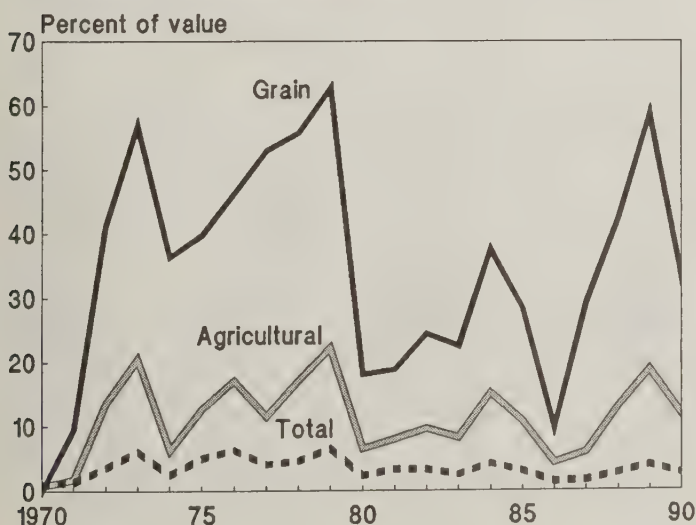
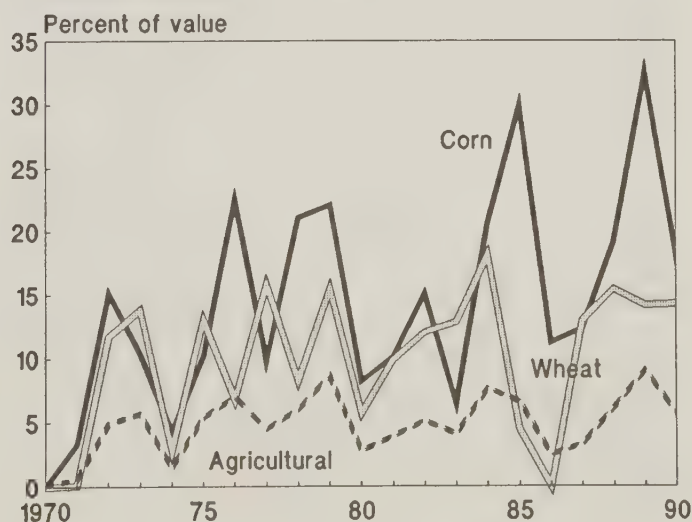


Figure 13
USSR Share of U.S. Exports



through December 31, 1995. The Soviets agreed to purchase 4 million tons of wheat and 4 million tons of feedgrains (defined in the agreement as corn, barley, and sorghum) annually for each of the 5 agreement years. In any single year, the USSR is allowed to purchase up to 750,000 tons of wheat or feedgrains on account of the other. However, at no time during the agreement is the total wheat or feedgrains purchased on account of the other to exceed 1.5 million tons. In addition, the Soviets agreed to buy each year another 2 million tons of either wheat, feedgrains, soybeans, or soybean meal (with 1 ton of soybeans or soybean meal counted for 2 tons of grain). The USSR may buy a total of 14 million tons of wheat and feedgrains each year without Government-to-Government consultations.

The United States and the USSR also signed a 3-year bilateral trade agreement on June 1, 1990. It was not sent to Congress for approval because the USSR had not adopted a new emigration law. The agreement provides that the countries accord most-favored-nation (MFN) status to each other for trade. On December 12, President Bush gave a six-month waiver of the Jackson Vanik Amendment. With the waiver, the United States offered the USSR \$1 billion in credit guarantees under the U.S. Department of Agriculture's Commodity Credit Corporation's Exports Credit Guarantee Program (GSM-102) for fiscal 1991 (table 25). When USDA announced the commodity specific terms in January, the USSR quickly made purchases. The feedgrains allocation covered corn, barley, sorghum, and oats, but all sales have been corn. The protein meals covered included soybean, cottonseed, linseed, and sunflowerseed meal, but all sales have been soybean meal. The GSM-102 allocation included \$50 million to cover some transportation costs.

The 1991 wheat sales were under the Export Enhancement Program as well as the GSM-102 program. Total bonuses for U.S. wheat sales to the USSR since May 1987 exceed \$708 million, of which \$87.5 million were for the early 1991 sales (table 26). In addition, the United States announced Soviet eligibility for another 2 million tons on March 21, 1991. Results from a recent study suggest that the USSR exercises monopsony power regarding its wheat imports.³⁸ As the USSR's wheat import share from the United States increased, the USSR generally paid lower prices for its imports.

The United States has another credit guarantee program in operation. The Export-Import Bank, after a 16 year hiatus, offered a total of \$300 million in guarantees, with a \$50 million limit on the financed portion of any transaction. Both the U.S. Export-Import Bank and U.S. Department of Agriculture, in recognition of the problem of who really controls foreign currency resources in the USSR, require that the USSR Bank for Foreign Economic Activities guarantee repayment of the U.S. programs.

Table 24--U.S. grain exports to the USSR

Year 1/	Wheat	Corn	Total
Million tons			
1976/77	3.0	3.2	6.2
1977/78	3.4	11.2	14.6
1978/79	3.9	10.9	14.8
1979/80	2.3	5.7	8.0
1980/81	3.7	5.7	9.4
1981/82	6.0	7.6	13.6
1982/83	3.0	3.2	6.2
1983/84	7.6	6.5	14.1
1984/85	2.9	15.1	18.0
1985/86	.2	6.7	6.9
1986/87	4.1	3.9	8.0
1987/88	8.8	5.6	14.4
1988/89	5.3	15.6	20.9
1989/90	3.7	16.3	20.0
Oct.-Dec. 1990	0	0.4	0.4

NA = Not applicable.
1/ October/September for 1976/77-1989/90.
Source: USDA/ERS, Foreign Agricultural Trade of the United States, various issues.

Table 25--U.S. sales to the USSR under the GSM-102, FY 1990 1/

Commodity	Guarantees authorized	Guarantees Approved	
	\$ million	\$ million	Tons
Feed grains	600.3	579.1	4,789,000
Wheat and wheat flour	165.0	155.3	2,010,000
Protein meals	142.7	134.6	600,000
Soybeans	58.0	58.0	250,000
Poultry meat	25.0	25.0	27,500
Almonds	9.0	8.8	2,538
Total	1,000	960.8	NA

NA = Not applicable
1/ As of March 28, 1991.

Table 26--U.S. EEP wheat purchases by the USSR 1/

Date	Amount	Bonus rate 2/	Total bonus
	Tons	\$/ton	\$ million
1986/87	4,000,000	41.52	166,093,500
1987/88	8,805,000	32.00	281,802,278
1988/89	4,696,000	20.59	96,704,290
1989/90	3,799,350	19.95	75,815,966
1990/91	2,108,480	41.51	87,531,908
Total	23,408,830	30.24	707,947,942

1/ Sales as of 4/12/91. 2/ Weighted average.

Granting MFN status to the USSR would lower tariff barriers to Soviet exports to the United States. However, it likely would have little short- to mid-term effect on U.S. imports from the USSR or on agricultural exports to the USSR. Typically about half of U.S. imports from the USSR have been commodities that enter duty free. These include precious metals and compounds, anhydrous ammonia, artwork, sable skins, and tractors.

The limited ability of the USSR to increase exports of many commodities most affected by tariff declines will restrict increases in USSR export earnings. Furthermore, because of the limited increase in Soviet export earnings (with or without MFN from the United States), the continued Soviet commitment to increasing its degree of food self-sufficiency, and the apparent

priority on nonagricultural imports, little increase in agricultural imports is likely to occur.

Cotton lint, which accounts for almost 50 percent of Soviet agricultural exports, currently faces U.S. tariffs about 3 times the MFN rate. The new terms of trade within the CMEA countries might result in less sales to traditional Soviet markets. However, programs to decrease the reliance on cotton monoculture in Central Asia should cut exports. Raw furskins, the largest U.S. agricultural import from the USSR, enter duty free with or without MFN status. The granting of MFN status would cut the tariff on Soviet vodka imports between 60 and 90 percent, depending on vodka quality. Lower duties would possibly lead to imports well above 1990's \$18 million in spirit imports from the USSR. (Kathryn Zeimetz)

Commodity Markets

The tremendous changes in absolute and relative prices throughout the Soviet economy will likely cause changes in Soviet agricultural production, consumption, and imports. The realignment of political and economic control within the economy is causing major disruptions in the supply of agricultural inputs and the distribution of food and fibers. Partial decontrol of trade, changing terms of trade with CMEA countries, and declining oil production will affect the ability of the USSR to import and its choice of suppliers. Thus, the forecasts about USSR commodity supply, use, and trade require even more caveats than usual.

Soviet grain imports are expected to be relatively lower than 2-3 years ago for a given production level. Thus, imports in 1991/92 might increase only slightly despite the forecast decline in Soviet grain production. The reduction in Soviet meat production in 1991 and lower sales to State agencies are expected to continue the need for sizeable meat imports despite higher domestic Soviet retail meat prices. The national Government at the beginning of 1991 promised to increase imports of much needed protein feedstuffs. The volume of Cuban sugar imports will likely remain near current levels despite Soviet efforts to change its terms of trade with Cuba. The export of cotton will increase from 1990's low levels as the question of who controls supplies is settled. Early season reports were that potato and vegetable area will be down again in 1991 (table 27).

Grain Sector in Transition

A number of important changes are taking place in the USSR with a direct bearing on Soviet grain imports in 1991/92 and beyond. Price increases, introduced at both the farm-gate and retail level, aim to stimulate domestic production and dampen demand for grain. Deterioration in the overall economic situation threatens the USSR's ability to earn hard currency. The deterioration is changing relations between the central Government and the republics, upsetting traditional grain flows within the country. Lastly, some changes have been introduced in the way grain trade is carried out, with the possibility of new trade channels opening up. While the interaction of these changes is complex, the overall impact points to a modest decline in Soviet grain imports from what they otherwise would have been.

Actual imports in 1991/92 will depend heavily on Soviet production and domestic procurements of grain, as in the past. But with a given level of production and procurements, Soviet imports are expected to be lower than they would have been 2-3 years ago. Continued wheat quality problems will keep Soviet wheat import demand solid. Coarse grain trade is more likely to be affected by changes in Soviet grain production prospects during the current year. Market shares for wheat and

Table 27--Area, yield, and production of selected crops, USSR

Year	Potatoes	Vegetables	Fruits, berries, grapes
Area 1,000 hectares			
1966-70 average	8,238	1,440	2,626
1971-75 average	7,953	1,601	3,304
1976-80 average	7,020	1,629	3,339
1981-85 average	6,771	1,710	3,321
1986	6,373	1,698	3,167
&p 1987	6,239	1,713	3,123
1988	6,079	1,726	3,121
1989	6,008	1,687	3,146
1990	5,815	1,592	NA
Yield 1/ Tons per hectare			
1966-70 average	11.5	13.2	3.7
1971-75 average	11.3	13.7	3.7
1976-80 average	11.8	15.2	4.5
1981-85 average	11.5	16.1	5.4
1986	13.7	16.4	5.8
1987	12.1	15.9	4.6
1988	10.3	15.7	4.8
1989	12.0	15.9	4.7
1990	11.0	16.6	NA
Production Million tons			
1966-70 average	94,813	19,472	9,710
1971-75 average	89,782	22,974	12,381
1976-80 average	82,571	26,313	15,176
1981-85 average	78,351	29,226	17,807
1986	87,186	29,783	18,338
1987	75,908	29,249	14,321
1988	62,705	29,259	14,938
1989	72,205	28,703	14,798
1990	63,700	26,400	14,600

NA = Not available.

1/ Soviet reported yields vary from calculated yields in some instances.

coarse grain trade are not expected to change appreciably from last year, unless some exporters are willing to extend further subsidy and credit concessions.

Price Increases and the Grain Sector

Retail price increases implemented in April for bread, bread products, meat, and milk products are expected to significantly reduce the excess demand for these commodities and, in turn, the pressure on policymakers to maintain consumption levels. The quantity of bread demanded by consumers does not respond strongly to price changes, but with heavily subsidized retail prices, waste rates for bread were, reportedly, very high. Given the magnitude of the price increase announced--200 percent--some impact on the quantity of bread demanded is likely. This conclusion is strengthened by

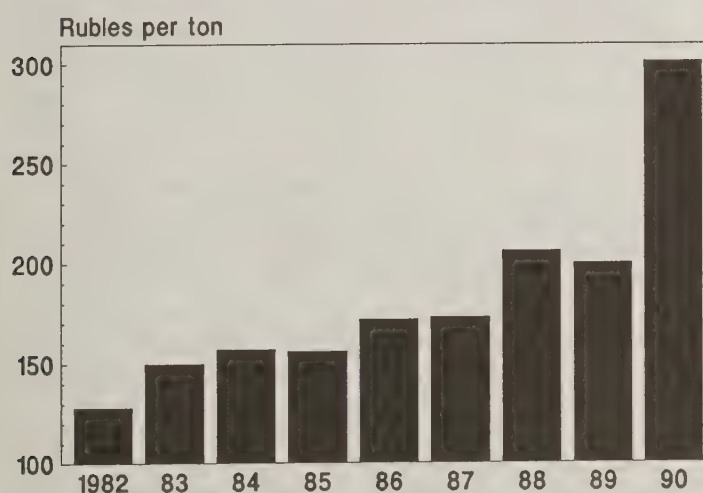
the fact that each year roughly 4-5 million tons of subsidized bread has been fed to livestock, mostly on the private household plots. With much higher bread prices, such feeding will no longer be profitable. While private livestock raisers will need to locate alternative feeds or reduce their livestock production, the drain on State grain supplies for bread production will be reduced.

Excess demand for meat and milk products in recent years grew to the point where rationing was required in many parts of the USSR. The significant increase in retail prices for these commodities will reduce excess demand, thereby relieving pressure on policymakers to bolster domestic supplies. This opens up the possibility of reduced grain feeding to livestock in the USSR.

Producer price increases for grain of over 50 percent were put into place last year in time for the 1990 grain harvest (figure 14). The hope was to increase incentives to sell grain to the State. The responsiveness of Soviet producers to higher grain prices under current conditions is very weak. In general, State and collective farms have more rubles than they can dispose of and have not responded to the high profitability of grain by increasing area or sales to the State.

More important than relative ruble profitability has been the tendency, reinforced by the local administrative bodies, to emphasize livestock production. Because there are neither reliable markets nor attractive prices for the purchase of off-farm feeds, farms prefer to keep their own grain and feed it to livestock. While this is wasteful due to lack of protein and feed supplements in the ration, the resulting meat and milk products are largely controlled by local regions or republics, while grain sold off the farm is managed primarily by the central Government. From the local policymakers point of view, it is more valuable to have meat and milk products to satisfy local consumers or to trade than to

Figure 14
Prices Received by Grain Producers, USSR*



*Average for State and collective farms, including bonuses

sell grain into the procurement system and be dependent on uncertain supplies of mixed feeds.

For this reason, the share of produced grain sold to the State increased only slightly with the higher procurement prices in 1990--to 31 percent from 30 percent the previous year (both production and sales expressed on a clean-weight basis--table 28). Moreover, the slight increase in the share of grain sold was due to the much larger crop in Kazakhstan in 1990 compared with 1989. Kazakhstan is the largest surplus grain-producing republic in the USSR. In this region there are few options but to sell a bountiful crop. In both the Ukraine and Russia, the share of grain sold to the State actually declined further in 1990, despite the higher procurement prices. The lack of producer responsiveness to higher grain prices is expected to continue this year.

Changes in Grain Flows

With the continued reluctance to sell grain to the State, farms retained a record large amount of grain following the 1990 harvest. Because of poor non-grain feed supplies (see feed section below), there was record grain feeding in the 1990/91 July-June year. One channel by which grain feeding increased was expanded use of payment in grain to State and collective farm workers in place of normal ruble payments. This grain went to support private household livestock inventories. In part because farms lack adequate storage capacities for grain, a much larger share of the crop than normal is estimated to have been lost after being brought in from the field. USDA estimates that dockage and waste from the 1990 crop totaled 36 million tons, or slightly more than 15 percent of the estimated bunkerweight production figure. In an average year, only about 11 percent of bunkerweight production would be attributed to dockage and waste.

Table 28--Production and State purchases of grains by major republics, USSR

Republic	1981-85 average	1987	1988	1989	1990 1/
Million metric tons					
Production 2/					
USSR	168.8	193.8	180.2	197.6	218.0
RSFSR	NA	98.6	93.7	104.8	116.8
Ukraine	NA	48.0	45.4	51.2	NA
Kazakhstan	NA	25.2	21.0	18.8	28.5
State purchases					
USSR	66.6	73.3	61.4	59.0	67.8
RSFSR	35.0	35.0	29.2	31.2	33.8
Ukraine	13.4	18.1	17.3	17.7	15.4
Kazakhstan	12.6	14.6	9.7	5.9	14.8

NA = Not available. 1/ Preliminary data from 1990 USSR and republic plan fulfillment reports and ERS estimates. 2/ Cleanweight.
Sources: *Narodnoe khozyaistvo*, 1989 and *Vestnik statistiki*, various issues.

In addition to greater on-farm feeding and waste, a larger share of grain retained by farms is believed to be entering secondary marketing channels, though data are not available. This grain is being bartered or sold directly from farms at free prices to end users. While some of this secondary trade is occurring between regions, most of it is probably local. Such spontaneous links portend the beginning of free grain marketing within the USSR. Commodity exchanges have been established in various cities where grain trade can take place, but the magnitude of such trade appears to be small.

A debate is now taking place in the USSR about the relationship between the central Government and the republics with respect to controlling grain supplies. Proponents of decentralization argue for cutting the amount of reserves controlled by the center from about 75 million tons to about 15-20 million tons. Under this plan, the central Government would be responsible for supplying the army and large urban areas such as Moscow and Leningrad. The republics would be responsible for satisfying all other needs. A few years ago, a step toward decentralization was taken when the national Government relinquished responsibility for mixed feed supplies except for the large livestock complexes. These consume more than half of all State mixed feed supplies in the country. Critics of decentralization argue that the republics purposely retained grain at the farm level and then turned to the central Government to bail out the mixed feed plants.³⁹

In response to farms retaining more grain, the central Government has reduced production of mixed feed from the State industry. This step has allowed the Government to reduce imports from what they otherwise would have been. Mixed feed production is one of the major uses of State grain supplies. The others are grain for food use (bread, flour, and groats), industrial processing (alcohol, syrup, and other commodities), seed grain, and stocks. As shown in table 29, the trend

Table 29--Grain procurements and imports, USSR

Year	Procurements	Imports	Total
Million metric tons			
1976-80 average	77.7	22.3	100.0
1981	58.1	47.3	105.4
1982	69.7	34.3	104.0
1983	75.6	32.5	108.1
1984	56.3	55.5	111.8
1985	73.5	29.9	103.4
1986	78.8	27.5	106.3
1987	73.3	32.0	105.3
1988	61.5	39.0	100.5
1989	59.0	39.5	98.5
1990	67.8	1/ 24.5	92.3

1/ Forecast.

Sources: Procurements are from *Narodnoe khozyaistvo, SSSR*, various issues. Imports are USDA July-June estimates.

in State grain supplies (defined as the sum of domestic procurements plus imports) has been down. This downward trend is expected to continue in 1991/92.

It seems unlikely that a continued trend toward decentralization of control over grain supplies can continue without establishing real grain markets. Most regions of the USSR are net importers of grain. Some regions, particularly within Russia, are extremely dependent on outside grain, while other regions are large surplus producers. Russia accounts for the bulk of Soviet net grain imports, while Kazakhstan is the only substantial net exporter of grain to other Soviet republics. Within Russia, three-quarters of all oblasts are not self-sufficient in grain.⁴⁰ The Non-Black Soil Zone of Russia, which encompasses a population of over 60 million, including the cities of Moscow and Leningrad, probably accounts for over half of all Soviet grain imports from other countries.

As central control over grain flows is relaxed, significant inter-regional grain trade will continue to be essential. The obvious alternative to central allocation is market determination of grain flows. A shift to markets for grain would probably alter current regional grain production and use patterns.

Hard Currency Sales and Wheat Quality

In 1990, the USSR continued for the second year its experimental program to pay domestic producers in hard currency for deliveries of quality wheat, groat crops, and pulses. The purpose of the program is to reduce import requirements by improving incentives for domestic producers to sell to the State. The program was rushed into implementation in August 1989, too late, some felt, to affect sales from the 1989 crop.⁴¹ In 1989, over 300,000 tons of grain were sold under this program, of which 223,000 were milling quality wheat (durum, hard, and "valuable" wheats). By September 20, 1990, sales of the 1990 crop under this program reached 752,000 tons, but only 72,000 were the higher quality hard wheats. The final totals for 1990 are not believed to have greatly exceeded these figures. Virtually all grain entering this program was from the North Caucus region of Russia and three nearby oblasts in the south-eastern Ukraine.⁴²

These sales totals are disappointingly small in comparison with the intended original scope of the program. When it was announced in 1989, funds sufficient to purchase 6-10 million tons of grain were mentioned as being available to the program. Farms have had difficulty securing payment in convertible rubles and then spending those funds in the way they see fit. In this sense, the hard-currency program represents another failure of the administrative approach to improve incentives.

Despite attempts to increase the amount of quality wheat sold to the State, wheat quality has suffered in the USSR

in recent years. In 1986, State and collective farms sold 11 million tons of hard wheat to the State. This represented one-quarter of all wheat procurements (table 30). By 1989 this total had slid to just 5.4 million tons, representing one-sixth of all wheat procurements. Preliminary reports for 1990 indicate that, while total wheat procurements increased to 40 million tons, sales of hard wheat were only 4 million tons.⁴³ Reasons for the quality problems are difficult to pin down. For the last two decades, wheat production emphasis has been on yields rather than quality, which influenced wheat breeding programs. But in recent years, the Government has renounced the goal of striving for gross output, and instead used price incentives to coax farms to sell quality wheat. In the process, however, lower prices were offered to grain growers in the southern regions where most milling-quality wheat originates. Obviously, the price incentives have not worked. Grain inspectors of the procurement system (a virtual monopoly) have had an incentive to downgrade wheat unfairly, which possibly led State and collective farms to stop aiming for the higher grade classifications. Without a change, Soviet imports of milling wheat are not likely to be cut much, regardless of the size of overall grain production.

Changes in Soviet Trade Channels

Beginning in 1991, Eksportkhleb, traditionally the monopoly importer and exporter of grain for the USSR, began a process of switching to a joint-stock ownership basis. Whereas in the past Eksportkhleb was an arm of the Foreign Trade Ministry with no financial independence, it is to begin functioning on a commercial basis seeking clients other than the central Government. Limitations on the range of its activities have been relaxed. Eksportkhleb can technically now engage in the trade of any type of commodity. At the same time, other Soviet trade organizations can act as grain exporting agents and might eventually have the right to act as importing agents as well.

The movement away from the traditional grain trade monopoly will be slow, however. As long as the central Government controls hard currency funds tightly, it will be, overwhelmingly, the most important USSR grain importer. (It is believed that the central Government is the majority stock-holder in the reconstituted Eksportkhleb.) While the republics and, conceivably, local regions and individual enterprises might be interested in conducting grain imports independently, their limited access to hard currency will keep them marginal players for the immediate future.

The elimination of the export monopoly on grain might explain the small-quantity sales originating from various parts of the USSR. The incentives for grain exports are reduced because farms can retain only about 20 percent of export revenues in the form of foreign currency. It is not clear what other de facto limitations are being placed on farms and regions interested in exporting grain. The

possibility of large grain exports from grain surplus regions of the country (for example, the southeastern Ukraine, southern Russia, and Kazakhstan) exists and is enhanced by the lack of attractive internal marketing possibilities. For this possibility to be realized, greater foreign trade autonomy for the republics is necessary.

1991 Crop Prospects

Initial indications about the 1991 crop point to a good harvest, though not as large as last year's near record. Winter conditions were generally mild. The Soviets have stated that most of the winter grain area came through the winter in good condition. However, winter grain area this year is expected to be down by roughly 4-5 million hectares, due to an inability to get the crop seeded last fall. Table 31 provides information on winter grain area as of the end of December for 1990 and 1991 crops. Most of the area decline occurred in Russia and was due to the persistent wet weather in the European USSR last September and October. Even though the winter was mild, winterkill is estimated to be larger than last year's remarkably low figure of just 4 percent (historically, winterkill has averaged 15-18 percent). So the decline in final winter grain area will be larger than the 3.3 million hectare shortfall as of December.

Table 30--State procurements of hard and total wheat, USSR

Year	Total	Hard	Share hard
	Million tons		Percent
1981-85	33.7	5.5	16.5
1985	35.1	6.9	19.6
1986	43.8	11.0	25.1
1987	35.2	7.2	20.5
1988	34.9	6.2	17.8
1989	34.0	5.4	16.0
1990 preliminary	40.0	4.0	10.0

Sources: *Narodnoe khozyaistvo* (1989), p. 424 and *Sel'skaya zhizn'*, 12/14/90, p. 1.

Table 31--Winter grain area at the end of December by major USSR republic

Republic	1989 1/	1990 2/	Decrease
	Million hectares		
USSR	34.4	31.1	3.3
RSFSR	19.6	16.9	2.7
Ukraine	8.7	8.4	0.3
Kazakhstan	2.1	1.9	0.2
Belorussia	1.0	0.9	0.1

1/ As of 12/25/89. 2/ As of 12/24/90.
Sources: Goskomstat Press Release, No. 13, 1/16/91.

Though spring grain area will be larger this year, its expansion is not anticipated to be large enough to reverse the long-term decline in grain area. Soviet grain area in 1991 is projected by USDA in May 1991 at 109 million hectares. Reasons for the continued area decline are numerous. In the late 1970's and early 1980's, the share of fallow in grain crop rotations was increased at the expense of grain area. More recently, State and collective farms have shifted area out of grain and into roughage crops. The shift to feed crops makes sense, given that they are not procured by the State, like grain crops. In this way, farms can better ensure control over their own feed supplies by shifting away from grain.

While weather factors have remained mostly positive, grain yields will be hampered this year by a decline in input availability. Less fertilizer and chemicals will be applied this year, and farms will probably have less machinery and fuel to cope with cultivation and harvesting. The 1990 grain crop was exceptional in the

sense that it was characterized by good growing conditions in all major grain producing regions. A more normal distribution of good and bad weather areas this year, in combination with worsening input availability, will mean lower grain yields. In May 1991, USDA projects Soviet grain yields at 1.93 tons per hectare, compared with last year's 2.15. Total grain production, in bunkerweight, is projected at 210 million tons, with wheat production at 92, and coarse grain production at 104.5 (table 32).

1991/92 Grain Trade Prospects

State grain procurements in 1991 are likely to fall toward the 59 million tons purchased in 1989, or lower. However, because of reductions in State use of grain (both mixed feed production and bread production), Soviet imports are projected at 30 million tons for the 1991/92 July-June year, compared with 39.5 million in 1989/90 and 24.5 million in 1990/91.

Table 32--Area and bunkerweight yield and production of grain, USSR 1/

Year	Winter	Wheat 2/ Spring	Total	Rye	Barley	Oats	Corn	Other 3/	Total grain
1,000 hectares									
Area									
1971-75 average	18,443	43,025	61,468	8,500	28,370	11,310	3,596	10,743	123,987
1976-80 average	20,471	40,240	60,711	7,714	34,011	12,080	2,969	10,421	127,905
1981-85 average	18,709	35,023	53,732	9,331	30,530	12,352	4,000	11,441	121,386
1986	16,632	32,096	48,728	8,741	29,964	13,173	4,223	11,648	116,477
1987	15,319	31,365	46,684	9,725	30,654	11,790	4,573	11,786	115,212
1988	18,313	29,745	48,058	10,115	29,732	10,946	4,431	11,630	114,912
1989	19,039	28,637	47,676	10,745	27,642	10,751	4,120	11,342	112,276
1990 4/	20,700	27,500	48,200	10,400	26,100	10,700	2,800	11,300	109,500
1991 5/	19,000	27,000	46,000	8,500	28,500	10,500	4,000	11,500	109,000
Metric tons per hectare									
Yield 1/									
1971-75 average	2.26	1.10	1.45	1.35	1.53	1.31	2.84	1.19	1.46
1976-80 average	2.48	1.22	1.64	1.41	1.62	1.42	3.22	1.21	1.60
1981-85 average	2.28	1.01	1.45	1.53	1.42	1.42	3.27	1.22	1.49
1986	2.80	1.43	1.89	1.76	1.80	1.66	2.95	1.22	1.80
1987	3.02	1.18	1.78	1.86	1.91	1.57	3.23	1.55	1.83
1988	2.98	1.01	1.76	1.83	1.50	1.40	3.62	1.40	1.70
1989	3.33	1.01	1.94	1.87	1.75	1.57	3.71	1.80	1.88
1990 4/	3.41	1.36	2.24	2.02	2.34	1.68	3.47	1.52	2.15
1991 5/	3.21	1.15	2.00	1.82	1.89	1.62	3.63	1.48	1.93
1,000 metric tons									
Production									
1971-75 average	41,590	47,345	88,935	11,493	43,289	14,812	10,215	12,810	181,554
1976-80 average	50,725	48,948	99,673	10,880	55,150	17,161	9,568	12,595	205,027
1981-85 average	42,726	35,204	77,930	14,280	43,480	17,540	13,080	14,001	180,311
1986	46,528	45,778	92,306	15,248	53,889	21,929	12,479	14,217	210,068
1987	46,237	37,075	83,312	18,055	58,409	18,495	14,808	18,286	211,365
1988	54,495	29,950	84,445	18,517	44,463	15,287	16,030	16,317	195,059
1989	63,495	28,812	92,307	20,057	48,509	16,828	15,305	17,918	210,924
1990 4/	70,500	37,500	108,000	21,000	61,000	18,000	9,800	17,200	235,000
1991 5/	61,000	31,000	92,000	15,500	54,000	17,000	14,500	17,000	210,000

1/ Some figures may not add or calculate because of rounding. 2/ Production data for winter wheat and spring wheat derived from official area and yield data for 1981-85. 3/ Includes millet, buckwheat, rice, pulses, and miscellaneous grains. 4/ USDA estimates. 5/ USDA May 1991 forecast.

Heavy debt-service requirements in 1991 will keep the Soviet hard currency position very tight for the coming trade year. Last year, the USSR utilized available credit programs to finance a significant share of its grain imports, while at the same time using available hard currency to increase imports of non-agricultural commodities. This strategy might not be sustainable into the new trade year.

Because of continued wheat quality problems, the USSR will continue to need imports of roughly 12-14 million tons of milling quality wheat. This will be supplemented by some feed wheat if prices are attractive. Soviet wheat imports in 1991/92 are projected by USDA at 15 million tons. In recent years the United States has relied on the Export Enhancement Program to maintain wheat exports to the USSR. In addition, in January the United States made available \$165 million of GSM-102 credit to the USSR for wheat imports. This covered 2.2 million tons of wheat sales during the 1990/91 trade year.

Other countries providing credit for wheat sales included France, Canada, and Australia. Canada and the

European Community (EC) have been exporting roughly 4 million tons of wheat a year to the Soviet Union, with the countries of Eastern Europe (mostly Hungary) adding about 1 million tons. This spring Australia re-entered the Soviet market and, if their production allows, might resume supplying as much as 1 million tons of wheat per year to the USSR. Turkey may also be able to ship over 1 million tons of wheat to the USSR in 1991/92. It appears that for any country to appreciably increase the quantity of its wheat exports to the USSR in 1991/92, even more extensive reliance on subsidies and favorable credit packages will be required. At some point this process becomes self-defeating. U.S. wheat exports in excess of the 4 million tons called for in the 1991-95 grain agreement do not appear reasonable given the need for trade concessions and expected Soviet import requirements.

Coarse grain imports for 1991/92 are projected at 14 million tons, slightly higher than actual trade in the 1990/91 July-June year (table 33). This trade will be negatively affected if feed wheat prices remain so attractive. The United States remains the primary

Table 33--Supply and use of grain, USSR 1/

Year beginning July 1	Produc- tion 2/	Trade		Avail- ability	Utilization						Stock change 3/	
		Imports	Exports		Seed	Indus- trial	Food	Dockage- waste	Feed	Total		
Million metric tons												
Total grains 4/												
Averages												
1976/77-80/81	205.0	22.3	2.0	225	26	6	46	28	121	225	0	
1981/82-85/86	180.3	39.9	0.5	220	25	5	47	19	121	216	4	
1986/87	210.1	27.5	0.5	237	25	5	47	23	130	230	7	
1987/88	211.4	32.0	0.5	243	25	5	47	30	132	239	4	
1988/89	195.0	39.0	0.5	234	25	5	48	22	135	235	-1	
1989/90	210.9	39.5	0.5	250	25	5	48	29	139	246	4	
1990/91	235.0	24.5	1.0	259	25	5	48	36	143	257	2	
1991/92 5/	210.0	30.0	0.5	240	25	5	47	26	139	242	-2	
Wheat												
Averages												
1976/77-80/81	99.7	8.9	1.0	108	13	2	35	14	43	107	1	
1981/82-85/86	77.9	21.0	0.5	99	11	2	36	8	39	96	3	
1986/87	92.3	16.0	0.5	108	11	1	36	10	45	103	5	
1987/88	83.3	21.5	0.5	104	11	1	36	13	40	101	3	
1988/89	84.4	15.5	0.5	99	11	1	37	10	41	100	-1	
1989/90	92.3	14.6	0.5	106	11	1	37	13	41	103	3	
1990/91	108.0	12.0	1.0	119	11	1	37	17	52	118	1	
1991/92 5/	92.0	15.0	0.5	107	11	1	36	11	49	108	-1	
Coarse grains 6/												
Averages												
1976/77-80/81	94.9	12.8	1.0	107	11	4	7	13	73	108	-1	
1981/82-85/86	90.7	18.0	0	109	13	3	7	9	76	108	1	
1986/87	105.9	11.0	0	117	13	4	7	11	80	115	2	
1987/88	113.7	10.0	0	124	13	4	7	15	84	123	1	
1988/89	97.5	23.0	0	121	13	4	7	11	86	121	0	
1989/90	104.8	23.9	0	129	13	4	7	14	90	128	1	
1990/91	113.3	11.5	0	125	13	4	7	17	83	124	1	
1991/92 5/	104.5	14.0	0	118	13	4	7	13	82	119	-1	

1/ All are USDA estimates and forecasts except production through 1989/90. Rounded to the nearest million tons, except for production and trade data. Totals may not add because of rounding. 2/ Calendar year basis, bunkerweight. 3/ Difference between availability and total use. 4/ Includes wheat, coarse grains, buckwheat, rice, pulses, and miscellaneous grains. 5/ USDA May 1991 forecast. 6/ Includes rye, barley, oats, corn, sorghum, and millet.

supplier of coarse grains to the USSR, shipping nearly 7 million tons in the 1990/91 July-June year. Of this, 4.8 million tons were covered by GSM-102 credits announced in January (\$570 million). Other important suppliers last year were China, with an estimated 1.5 million tons of corn, and the EC and Canada, with estimates of about 1 and 1.5 million tons of barley respectively. France and Canada made credit available for barley exports to the USSR. The United States stands to increase modestly its coarse grain exports to the USSR in 1991/92, depending on other countries' willingness to extend further trade concessions and on the Soviets' hard currency position. Coarse grain trade is likely to be more strongly affected than wheat by swings in Soviet grain production prospects this year.

New Clean Weight Accounting Methodology

In the last two years, the Statistical Committee of the USSR (Goskomstat) has introduced a new methodology for calculating grain production. Traditionally the Soviets have used a bunkerweight methodology which calculated grain weight as it was brought in from the field, but prior to cleaning and drying. In this way, the wetter and dirtier the crop was, the higher production was. This flaw in accounting methodology was compensated for in Western calculations of Soviet grain production by deducting from the Soviet bunkerweight figures an estimate of excess moisture, trash, and waste (dockage/waste).

The new Soviet methodology calculates grain weight after cleaning, which accounts for excess moisture, foreign matter, and some waste. Official discounts from bunkerweight to clean weight for the USSR as a whole and for major republics are presented in table 34. In the last 5 years, the discount rate from bunkerweight to weight after processing ranged from 6.7 percent to 8.3 percent. The range of discounts within individual republics was also small, though republics have distinctly different ranges of discounts.

Table 34--Cleanweight discount rate for total grain by USSR major republic, 1986-90 1/

Republic	1986	1987	1988	1989	1990
	Percent				
USSR	7.6	8.3	7.6	6.7	8.0
RSFSR	8.9	9.6	8.9	7.3	8.0
Ukraine	3.6	4.4	4.2	3.8	NA
Kazakhstan	6.0	6.4	6.9	7.7	8.9
Belorussia	14.8	16.0	14.8	13.2	14.6

NA = Not available.

1/ The percentage difference between bunkerweight and cleanweight grain production (cleanweight divided by bunkerweight).

Sources: *Narodnoe khozyaistvo* (1989) and republic plan fulfillment reports.

Data on average national discounts by grain type are presented in table 35. There is no discount applied to corn. Because Goskomstat uses a separate harvest-reporting channel for corn, production might have been calculated on a cleanweight basis even under the old bunkerweight methodology. If not, then the new cleanweight statistics are overstated. Soviet corn for grain typically comes in from the fields at high moisture levels (as high as 30 percent). Discounts for the other grain types moved within fairly narrow ranges during 1986-89.

Beginning in 1989, State and collective farms have filed accounting forms as of December 1 on cleanweight grain production by grain type (excluding corn). For grain that has not been cleaned by that date, and for the small amount of grain grown in the private sector, estimates are made of appropriate discounts. After this, corn for grain production is added in.⁴⁴

Though not yet published, cleanweight grain production is being calculated all the way back to 1954, based on available farm and grain procurement accounting records. These records are admittedly spotty, particularly before 1965. Until more complete data under the new methodology are available, USDA will continue to report the traditional bunkerweight figures.

The overall Soviet cleanweight discount of 7-8 percent is not directly comparable to the dockage/waste discount that the USDA applies to USSR production. The USDA discount has averaged roughly 11 percent and has gone as high as 15 percent in some years. The Soviet discount does not reflect losses that occur subsequent to the cleanweight accounting. This would occur in transportation and storage off the farm, as well as subsequent losses in on-farm storage. One indication of farm losses occurring after the cleanweight accounting is the fact that farms lack adequate grain storage facilities and a good deal of grain stored on the farm has not been cleaned or dried by December 1 (and some never will be). For these reasons, the new Soviet cleanweight discounts do not appear to contradict USDA's dockage and waste estimates. The lack of year-to-year variation in the Soviet discounts calls into question their reliability. (Edward C. Cook)

Table 35--Cleanweight discounts by grain, USSR

Grain	1986	1987	1988	1989
	Percent			
All grain	7.6	8.3	7.6	6.7
Wheat	6.2	7.1	6.7	5.5
Barley	8.1	8.6	8.7	7.4
Corn	0	0	0	0
Rye	9.5	10.8	8.7	8.8
Oats	13.8	14.0	13.0	10.9

Source: *Narodnoe khozyaistvo* (1989).

Livestock Sector Contracting

The 1990 decline in livestock production will continue in 1991 (table 36). Because of a decline in feed supplies, and continued feed quality problems, farms are unable to maintain production of meat and milk. Recent changes in procurement price policy probably are also forcing some high-cost livestock producers to shift to other commodities. Lastly, disruptions in interregional trade relations are having some negative impact on livestock feeding efficiency.

Livestock Product Trade Prospects

Prospects for growth in Soviet imports of livestock products are negatively affected by the recent boost in domestic retail prices for meat and milk. Meat imports grew from 700,000 tons in 1989 to 1.13 million tons in 1990. Some policymakers indicated a desire to boost them further to 1.4 million tons this year. Given the degree of unsatisfied Soviet demand for meat, attractive import opportunities for poultry meat, and the continued inefficient use of imported feed grain, further increases in Soviet meat imports made sense. The April retail meat price increases are expected to greatly alleviate excess demand for meat within the USSR, and reduce pressure on policymakers to supplement domestic production with imports. Because of hard-currency constraints, limiting the growth of imports will be an attractive strategy. An estimated 3 percent decline in Soviet meat production in 1991 will limit reductions in meat imports from the 1990 level. Meat imports are expected to be 700,000 to 1,000,000 tons this year.

With the breakup of the CMEA trade bloc, the share of meat imports from Eastern Europe declined starting in 1989. Countries with rising market shares include the United States, which in 1990 became the Soviet Union's primary supplier of poultry meat with roughly a 40

percent market share. Both former parts of Germany were the major source of Soviet red meat imports. East Germany's 1990 sales came as a result of the inability to compete domestically against the influx of new products from the West. A large portion of the red meat from West Germany in 1990 was shipped on concessional terms as part of a larger aid package. China was the second most important source of Soviet red meat imports in 1990, shipping roughly 130,000 tons annually.

Despite questionable prospects for further growth in total meat imports, the prospect for continued increases in poultry meat imports remains bright. Poultry products from the United States have been priced so attractively and have been so well received by Soviet consumers that shipments over the 1990 level of 138,000 tons are possible. The countries of Eastern Europe might gradually regain their share of the Soviet market for meat imports. Due to domestic economic changes, many of these countries will be faced with larger exportable supplies, but no obvious Western markets.

Soviet butter imports peaked in 1988 at 440,000 tons on the strength of large, heavily subsidized sales from the EC. In 1989 and 1990 Soviet butter imports were 247,000 tons and 299,000 tons. The Soviets paid a much higher average price in 1989 and 1990 than they did in 1988. Continued higher prices remain a limiting factor for Soviet butter imports. As a result of a 145 percent increase in domestic retail butter prices, excess demand for butter in the USSR has been reduced. The price of butter relative to margarine has also increased, as margarine prices were increased by only 100 percent. This in turn has reduced the pressure on policymakers to supplement domestic butter production with imports. Though Soviet butter production is expected to fall slightly this year, butter imports are also projected to be down. In 1990, the United States accounted for 14 percent of Soviet butter imports, with 37,000 tons. Competition will remain tight in 1991 from

Table 36--Production of principal livestock products, USSR

Year	Meat 1/						Milk	Wool 2/	Eggs
	Total	Beef and veal	Pork	Mutton, lamb, and goat	Poultry	Other			
				1,000 metric tons					Millions
1966-70 average	11,583	5,187	4,327	992	853	224	80,553	NA	35,840
1971-75 average	14,004	5,985	5,394	972	1,335	318	87,446	425	51,427
1976-80 average 3/	14,843	6,827	5,009	882	1,835	290	92,662	442	63,133
1981-85 average	16,226	6,973	5,606	838	2,555	252	94,579	457	74,422
1986	18,057	7,840	6,065	894	2,988	270	102,173	469	80,746
1987	18,895	8,288	6,324	905	3,126	252	103,774	461	82,737
1988	19,680	8,616	6,595	960	3,235	274	106,754	478	85,150
1989	20,137	8,800	6,700	1,000	3,400	237	108,529	479	84,854
1990 4/	19,900	NA	NA	NA	NA	NA	108,700	471	82,000

NA = Not available.

1/ Carcass weight, including fat. 2/ Physical weight. 3/ Revision based on the average published in Narodnoe khozvaistvo SSSR v 1982. Is not consistent with average derived from last published figures for each year.

4/ Preliminary.

New Zealand and Europe. Some CMEA trading partners, such as Poland, are possibly planning to increase butter exports to the USSR this year. Delayed payments to New Zealand for butter and wool appear to have been reduced, allowing New Zealand to become the USSR's primary butter supplier.

Contraction of the Livestock Sector Continues

Contraction of the Soviet livestock sector will continue in 1991. Last year production of meat, eggs, and wool was down, and inventories of cattle, hogs, sheep, and poultry fell (table 37). Preliminary Soviet data show a 1990 decline in gross livestock production of 0.8 percent. ERS calculations indicate that the actual decline was roughly 2 percent (table 38).

The Soviet Union entered 1991 with the largest decline in feed supplies relative to the preceding year since at least 1981. Overall feed supplies for 1990/91 are estimated to have fallen by 2 percent (table 39). Only an expansion of grain feeding kept this figure from dropping further. Availability of coarse and succulent feeds declined and quality remained poor. Hay production fell by over 10 percent. Silage production, bolstered by a large diversion of grain corn to silage use, fell by only 5 percent.

This does not bode well for Soviet livestock production in 1991. A comparison of feed availability and livestock production in 1990 indicates a noticeable decline in feeding efficiency. This was a result not only of perennial roughage quality problems, but a cutback in protein meal imports. Farms also cut back the use of mixed feed and other purchased feeds in favor of straight grain feeding. If these trends continue this year, Soviet livestock production might fall by as much as 5 percent. The central Government is expected to take steps to avert such a decline, including renewed protein imports. As a result, a 2-3 percent drop in livestock output is anticipated in 1991.

Livestock inventories have been in decline since 1987. The reductions that occurred in 1990 were on State and collective farms, as private livestock holdings actually increased. The mini-boom in private livestock raising was fueled by increased availability of feeds, particularly grain, from the socialized sector in the form of payment in kind to State and collective farm workers. The decline in socialized sector inventories will likely continue this year, as changes in farm-gate pricing increase pressure on high-cost producers to cut back production. However, the central Government, alarmed at the prospect of further inventory declines, will possibly set more favorable policies toward private producers.

Soviet meat production is expected to fall by 3 percent this year, the largest annual decline since 1976. The biggest fall is expected in beef production, due to the poor non-grain feed situation, with a smaller reduction in pork production. Poultry meat production is expected to remain unchanged, assuming steps are taken to improve mixed feed and protein supplies to the large poultry complexes. If not, poultry meat production will decline.

The poor roughage feed situation in the first half of the year is expected to have an impact on milk production. The steady improvement in average milk yields ended in 1990 and will probably fall in 1991. For the year as a whole, Soviet milk production is anticipated to decline 2-3 percent. In 1990, egg production fell by 3.5 percent, the largest decline in recent history. Part of the problem was increasingly unreliable feed deliveries to layer operations and a decline in protein content of mixed feeds. Another problem was the breakdown in normal interregional trade patterns, which forced some large producers to reduce laying flocks. A more modest decline in egg production of 1-2 percent is anticipated this year, if these problems receive greater attention. Otherwise a drop equal to 1990 is likely.

The combination of falling domestic production and no (or negative) growth in imports means that per capita consumption of meat, milk, and eggs will fall in 1991.

Table 37--January 1 livestock numbers and animal units, USSR

Year	Cattle		Hogs	Sheep	Goats	Horses	Poultry	Total animal units 1/
	Total	Cows						
Million head								
1971	99.2	39.8	67.5	138.0	5.4	7.4	652.7	130.5
1976	111.0	41.9	57.9	141.4	5.7	6.4	734.4	136.5
1981	115.1	43.4	73.4	141.6	5.9	5.6	1,032.4	149.4
1986	120.9	42.9	77.8	140.8	6.5	5.8	1,165.5	156.9
1987	122.1	42.4	79.5	142.2	6.5	5.9	1,174.0	158.3
1988	120.6	42.0	77.4	140.8	6.5	5.9	1,175.0	156.5
1989	119.6	41.8	78.1	140.8	6.6	5.9	1,199.5	156.6
1990	118.4	41.7	79.0	138.4	7.0	5.9	1,213.9	156.1
1991	116.2	41.4	76.8	2/ 134.1	2/ 7.0	2/ 5.9	1,206.1	2/ 153.3

1/ In terms of cows. Conversion ratios as follows: Cattle (other than cows) 0.6; hogs 0.3; sheep and goats 0.1; horses 1.0; and poultry 0.02. 2/ Estimate.

Demand for livestock products in the USSR has been fueled by substantial retail price subsidies. Despite the perception of food shortages in the Soviet Union, per capita consumption of many foods is relatively high (table 40). For example, Soviet meat consumption is within 30 percent of countries like the United Kingdom, Norway, and Finland. As a result of the April retail price increases, prices now approach domestic costs of production; thus, the new prices are more appropriate. While per capita consumption will decline modestly, market imbalances should be significantly reduced.

Procurement Price Changes

In September and October 1990, farm-gate price increases were introduced for livestock products. Because of higher price increases for crops, the relative

Table 38--Livestock sector and feed supply measures, USSR

Category	1985	1986	1987	1988	1989	1990	1991
	Percent						
Livestock sector growth							
Official Soviet 1/	1.0	4.7	1.2	4.1	1.6	-0.8	NA
CPE Branch 2/	-0.5	6.5	0.4	4.5	1.6	-2.2	-2.8
Feed supplies 3/	0.9	3.0	1.1	3.7	-0.8	2.2	-1.9

NA = Not available.

1/ Gross value of livestock production in 1983 prices, as reported in *Narodnoe khozyaistvo SSSR*.
2/ Estimated by the CPE Branch based on meat output by type, production of eggs, milk, and wool, and inventory changes in estimated 1986 prices. 3/ July-June years. 1984/85 feed supplies are listed under 1985, etc. From table 34.

profitability of livestock production fell. As noted in the grain section, however, the current responsiveness of Soviet producers to relative prices probably is weak. As part of the price revision, the system of paying differential bonuses to high-cost producers was eliminated. These bonuses had been huge, equal to roughly 20 percent of total farm revenues. Furthermore, fully 85 percent of the bonuses were paid for meat and milk sales.

Table 39--Feed supplies by type in oat-unit equivalent, January 1 standard animal units, and feed per standard animal unit, USSR

Unit	1987/88	1988/89	1989/90	1990/91 1/
	Million metric tons			
Total feed	463.4	459.7	469.9	461.1
Coarse 2/	98.9	99.9	99.8	96.2
Pasture	61.3	61.2	59.5	61.2
Succulents 3/	117.6	108.1	116.1	105.9
Concentrates 4/	185.6	190.5	194.5	197.8
January 1 total animal units 5/	156.5	156.6	156.1	153.3
Feed per standard animal unit	2.96	2.93	3.01	3.01

1/ Preliminary. Totals may not add because of rounding. 2/ Includes hay, haylage, and straw. 3/ Includes silage, green chop, potatoes, feed roots, melons, and beet pulp. 4/ Includes grain, millfeeds, oilmeal, fish and animal meal, grass meal, feed yeasts, and whole and skim milk. 5/ In terms of cows. Conversion ratios as follows: Cattle (other than cows) 0.6; hogs 0.3; total sheep and goats 0.1; horses 1.0; and poultry 0.02.

Table 40--Consumption norms of selected food products and per capita consumption, USSR

Year	Meat and fat	Fish and fish products	Milk and milk products 1/	Eggs 2/	Sugar	Vegetable oil	Potatoes	Grain 3/	Vegetables and melons	Fruit and berries
	Kilograms									
1950	26	7.0	172	60	11.6	2.7	241	172	51	11
1960	40	9.9	240	118	28.0	5.3	143	164	70	22
1970	48	15.4	307	159	38.8	6.8	130	149	82	35
1980	58	17.6	314	239	44.4	8.8	109	138	97	38
1985	62	18.0	325	260	42.2	9.7	104	133	102	48
1986	62	18.6	333	268	44.0	9.8	107	132	102	56
1987	64	18.0	341	272	47.2	10.0	105	132	100	55
1988	66	17.6	356	275	46.8	10.1	99	131	101	55
1989	67	17.2	363	268	42.5	10.4	98	129	95	41
1990	67	17.3	363	263	44	10.4	97	132	91	38
1990 consumption norm 4/	70	18.2	360	265	35.3	13.2	105	115	140	75

1/ Including milk equivalent of butter. 2/ Number. 3/ Flour equivalent. 4/ *Agropromyshlennyy kompleks SSSR*, Goskomstat (1990), p. 99.

The differential bonus payments had developed into an elaborate system whereby procurement prices were differentiated down to the farm level. In some cases certain farms received prices 70-100 percent higher than other farms in their region. Though the new base prices for livestock products have been increased greatly, averaging 28 percent higher, the elimination of the differential bonuses will leave particularly inefficient producers unable to cover costs. Even in the distorted Soviet economic environment, unprofitability is expected to result in production cutbacks on those farms. Whether enhanced profitability in low-cost areas can result in counteracting production increases on efficient farms remains open to question.

Republics have the right to create additional procurement price zones within their boundaries. In doing this, average procurement prices cannot fall below the level determined for each republic by the central Government. If the republics increase the average farm procurement prices above the centrally determined levels, the additional subsidies must come from the republic budgets.

Large Retail Price Increases Affect Demand

In April, the central Government tripled retail prices for meat, increased butter prices by 145 percent and fluid milk prices by 50-100 percent. The magnitude of these increases is expected to significantly cut into excess demand for meat and milk products. The retail price for meat has increased to 5.3-7.0 rubles per kilogram. Information collected by the Statistical Committee on black market trade indicates meat prices of 9-10 rubles per kilogram.

Estonia independently increased its retail beef price to 9 rubles per kilogram in the fall of 1990. This price appears to have cleared markets there. The prices of beef and pork at collective farm markets in some strongly food deficit regions, such as Moscow and Leningrad, are in excess of 20-25 rubles per kilogram. What a market clearing price for the USSR as a whole would be is uncertain. It is possible that the new State-set prices will not be high enough to fully eliminate excess demand for meat. The new retail prices do not cover average production costs for beef. The average expenditures required to supply a kilogram of retail-weight beef are about 10 rubles. Comparable figures for pork and poultry are 6-7 rubles.⁴⁵

Retail milk prices now average 50 kopecks per liter compared with production costs of 85-90 kopecks per liter. Butter, which is extensively rationed in the USSR, will now be priced at 8.8-12.0 rubles per kilogram. The price in Estonia was previously increased to over 9 rubles. Average production costs in the USSR for butter now are roughly 15-20 rubles per kilogram. These retail price increases will reduce pressure on the government to supplement domestic production with imports.

Republics have the right to establish lower retail prices than those specified by the central Government. But because they cannot set average procurement prices lower than the centrally determined ones, lower retail prices mean higher subsidies. These additional subsidies would have to be funded by the republican budgets. Indications are that responsibility for wholesale and retail price policy has passed to the oblast level in some cases.

Meat and milk alone accounted for over 80 percent of the 95.9 billion rubles of retail price subsidies in 1990. Assuming no additional republic or oblast budgetary funding for retail or procurement prices, then retail price subsidies will decline to as little as 30 billion rubles in 1991. The decentralization of budgetary responsibility for retail food price subsidies should make the decision to maintain large retail price subsidies less likely.

Interregional Trade Flows

Russia imports roughly twice as much meat as the USSR as a whole, and accounts for virtually all of the USSR's imports of butter and other milk products (table 41). The Central Asian and Transcaucasian republics are also net importers of meat and milk products, some of them being heavily dependent on outside supplies. The Baltic republics, Belorussia, the Ukraine, and Moldavia are net exporters of meat and milk products. The ratios of exports to internal consumption are highest for the Baltics and Belorussia. The Baltics and Belorussia are, however, net importers of feed.

Since 1989, the surplus regions have been reluctant to maintain their exports and have instead boosted internal supplies.⁴⁶ Meat shipments to central Government reserves (the All-Union Fund) from surplus producing

Table 41--Net imports of meat and milk products, 1987, USSR

Republic	Net meat imports	Net milk imports 1/
	1,000 tons	
USSR	868.8	8590.0
RSFSR	1,593.7	8967.4
Ukraine	-377.0	-1004.5
Lithuania	-173.0	-1248.3
Latvia	-81.0	-623.2
Estonia	-63.6	-511.6
Georgia	83.6	1,022.4
Azerbaijan	67.7	1,175.5
Armenia	65.1	997.8
Uzbekistan	194.8	1,135.3
Kirgizia	-7.8	104.2
Tadzhikistan	32.7	209.6
Turkmenistan	64.8	329.7
Kazakhstan	-146.2	221.6
Belorussia	-305.8	-2,087.6
Moldavia	-79.3	-98.3

1/ In whole milk equivalent
Source: *Razvitie agropromyshlennogo proizvodstva SSSR*, Goskomstat, Moscow, 1989, pp. 165-175.

regions declined by 20 percent (500,000 tons) in 1990, forcing reductions in meat supplies to deficit regions (figure 15). In the first ten months of 1990, deliveries fell by 13 percent to Moscow and by 27 percent to Leningrad from planned levels.⁴⁷ The central Government responded by reducing shipments of grain and mixed feed into feed-deficit regions such as the Baltics and Belorussia. In the process, the shifting pattern of interregional trade has contributed to increased demand for livestock product imports from outside the USSR.

Per capita meat consumption in the USSR (including slaughter fats and offals) in 1989 was 67 kilograms. In Moscow, Leningrad, and the Baltics, consumption was over 80 kilograms per capita. In comparison, the republics of Central Asia were between 30-45 kilograms per capita.⁴⁸ The market disruptions in Moscow and Leningrad, therefore, do not represent a problem of hunger, but rather a cutback in traditionally high levels of consumption. Inappropriate price and income policies have insured that problems in distributing available meat supplies became worse.

Interregional trade within the USSR could be rationalized if freely negotiated prices for such trade were introduced. It is not certain the extent to which such freely negotiated trade in livestock products might be taking place spontaneously, without official Government sanction. Prior to the retail price increase, there were reports from Moscow that stores were scrambling to locate supplies at higher contract prices and passing the price increases on to consumers. Now that the higher prices are in effect, it is not certain whether this arrangement will be tolerated. The retail price revision specifies that prices for meat and milk will continue to be administratively controlled, with the limited flexibility offered to republics described above. Without market-determined trade, the central

Government will possibly feel the need to reassert administrative pressure to insure that traditional trade flows for meat and milk products are resumed, or that the disruptions are not aggravated further. (Edward C. Cook)

Protein Feed Imports Identified as Priority

Soviet production, consumption, and imports of oilseeds, oilmeals, and vegetable oils are more difficult than usual to predict in 1991 and 1992 because of major changes in the USSR food economy. The changes include drastically different producer price schedules for oilseeds and other crops and higher retail prices for vegetable oil, meat, and other foods. Other important variables include world energy prices, changing regional interests, liberalized foreign trade rights, and the declining internal convertibility of the ruble.

Despite the Soviet goal, announced in the early 1980's, to achieve protein self sufficiency by 1990, the protein feed gap has widened. Domestic oilseed production increased over 3 million tons during the decade. However, with increased requirements, the USSR has a chronic feed protein shortage estimated at 10-15 million tons in soybean meal equivalent.

Oilseed meals account for only about 5 percent of mixed feed ingredients, compared with about 20 percent in many Western countries. Western and Soviet analysts agree that raising the protein content of feed is essential to increase Soviet animal productivity, improve feeding efficiency (including better use of imported grain), and increase animal product output. Soviet animal productivity is roughly half the U.S. level.

In 1990/91, USDA forecasts that Soviet oilseed meal production will be 5.311 million tons, down about 5 percent. This roughly parallels the decline in Soviet oilseed production in 1990 (table 42). In addition, Soviet soybean imports were down in 1990 (figure 16). Imports during January-September from the United States and China were 491,000 tons, compared with 702,000 tons during the same period in 1989. Imports in calendar 1989 were 872,000 tons. (According to Soviet data, soybean imports in marketing year 1989/90 were 661,000 tons.)

An example of the commitment to raise USSR oilseed production was 1987's 66-percent increase in the Government purchase price for sunflowerseeds. In terms of Soviet accounting, the price increase raised profitability for sunflowerseeds to 273 percent. Grain came in a poor second at 87 percent. The USSR profit measure compares average purchase price to average prime costs of production. Sunflowerseed area expanded 11 percent from 1987 to 1990. Production in 1989-90 averaged more than 10 percent above 1987-88.

Figure 15
Meat Deliveries to the All-Union Fund, USSR

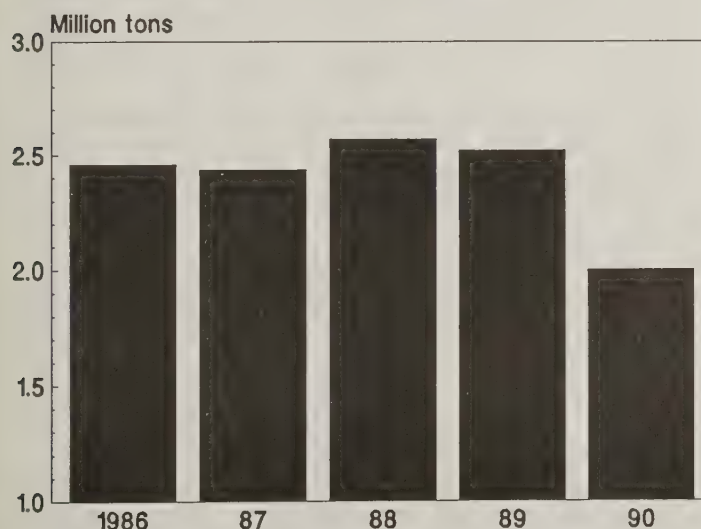


Table 42--Oilseed area, yield, and production, USSR 1/

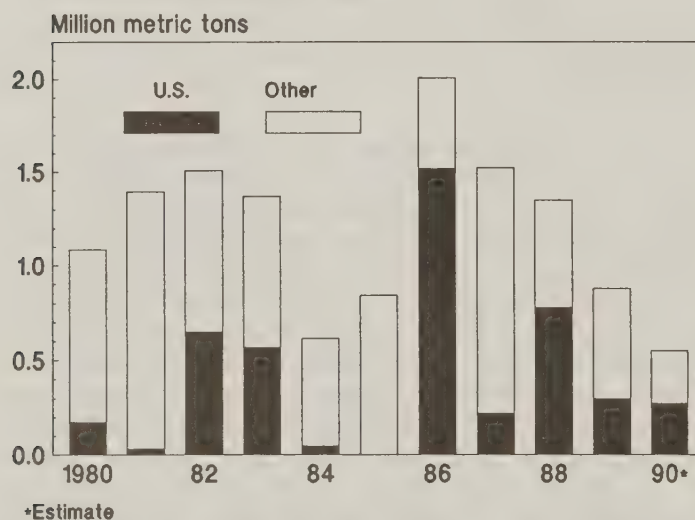
Year	Sunflower seed	Cottonseed	Soybean	Rapeseed	Other	Total
1,000 hectares						
Averages						
1986	3,848	3,475	745	32	585	8,685
1987	4,156	3,527	783	125	783	9,374
1988	4,280	3,432	760	182	944	9,598
1989	4,600	3,338	830	190	636	9,594
1990	4,623	3,164	835	200	730	9,552
Tons per hectare						
Averages						
1986	1.37	1.54	0.94	3.44	0.29	1.34
1987	1.47	1.49	0.91	2.37	0.21	1.34
1988	1.44	1.65	1.16	2.31	0.19	1.38
1989	1.54	1.67	1.15	2.23	0.42	1.49
1990	1.41	1.71	1.10	2.75	0.34	1.43
1,000 metric tons						
Averages						
1986	5,270	5,352	703	110	167	11,602
1987	6,120	5,255	712	296	162	12,545
1988	6,164	5,648	880	420	176	13,288
1989	7,070	5,568	956	424	270	14,288
1990	6,500	5,398	920	550	250	13,618

NA= Not available.

1/ Cottonseed is USDA estimate; other does not include oilseeds from fiber flax and hemp; and total is an estimate based on Soviet data on total oilseed production without cottonseed. Estimates for 1990 except sunflowerseed.

Figure 16

USSR Soybean Imports



In 1991, the Government reduced the number of producer price zones and price bonuses which supported production by inefficient farms and in marginal areas. For sunflowerseeds only two zones remain; for other oilseeds only one producer price is in effect. Efficient farms in prime areas should face higher prices on average, while inefficient producers in marginal areas should be facing lower prices. The new prices slightly

exceed the previous average prices (including funds associated with previous regionalized and bonus prices). The increase, however, is less than expected production cost growth. The Soviet measurement of profitability will fall to 211 percent. The gap between sunflowerseed and grain profitability narrows, but remains large (89 percentage points).

Better producing areas now face higher prices and should expand production. However, the worsening problems in input supply and domestic unresponsiveness to increasingly worthless rubles will dampen the effect. A key unknown is how rapidly high-cost producers will cut back production now that they are not receiving price supplements. To what extent the Government will allow the failure of farms losing subsidies is also unknown. Agriculture-wide, the Government plans to invest 17 billion rubles in financially troubled farms. Such funds are expected to act as a safety net.

Cottonseed area should fall, in line with Uzbek initiatives to divert land to small-private-plot production of feeds, fruits, and vegetables. Reportedly, the poorer quality land is reallocated. Thus, seed cotton yields generally increased while area declined.

The disruptions in interrepublic marketing affect oilseed meal and vegetable oil import requirements, irrespective of price effects on domestic production. The breakdown keeps excess supplies in certain areas of the USSR from reaching deficit areas and reduces protein feed supplies to large livestock complexes. The breakdown also is expected to expand production in some regions. The Baltics are trying to increase rapeseed production to cut reliance on other areas. The reluctance to sell to the national and republic purchasing agents that recently characterized grain sales was seen in 1990 sunflowerseed sales to the Government. Sunflowerseeds procurements at 4.6 million tons were down 17 percent from 1989, although production was down only 4 percent. The decline occurred despite the offer of hard currency to certain farms selling above quota amounts. Sales to the Government in 1990 were 6 percent below the 1986-89 average, although production averaged 6 percent higher.

Developments in consumer demand will affect the Government response to changes in oilseed production and farm sales. The retail price of vegetable oil and margarine doubled and of meat tripled in April 1991. The Government promises average compensation for 85 percent of the large price increases for most consumer goods. Despite compensation, the price increases should cut excess demand of vegetable oils and meat (and most other commodities) and even trim actual consumption.

Soviet per capita vegetable oil consumption was 10 kilograms in 1989, up 7 percent from 1985 and 18 percent from 1980. According to published Soviet data, Soviet total vegetable oil production in 1989 was 3.249 million tons. Edible vegetable oils probably account for

about 97 percent of the total. Despite the 15 percent increase in sunflowerseed production in 1989, vegetable oil production in the first six months was down 1 percent. By the end of the year, vegetable oil production was up 0.3 percent. However, margarine production was down 7 percent and equaled 1.4 million tons.

The smaller 1990 oilseed crop and lower Government purchases should more than offset any increase in oilseed imports. Thus, vegetable oil and margarine output combined in 1991 could fall 5 percent.

The drop in the quantity demanded of vegetable oil because of higher retail prices might match the decline in production. A larger decline in consumption should translate into further vegetable oil import reductions, if producer price changes do not disrupt domestic production. If domestic production falls substantially because of the new price scheme and input supply disruptions, imports might increase.

Soviet data show total vegetable oil imports in 1990 at 0.674 million tons, down 43 percent from 1989's record (figure 17). This decline still left imports well above 1988 and near the decade average. Most major imported oils (sunflowerseed, soybean, and coconut oils) and several important suppliers took 40-45 percent cuts in the first 9 months of 1990. The exception was a 65 percent cut in palm oil imports. Edible vegetable oil imports from Argentina in the first three quarters of 1990 were down 43 percent to 171,000 tons including a 40 percent drop in sunflowerseed oil shipments to 111,000 tons. Malaysia took a 45 percent cut.

Soviet quarterly data show 1989/90 marketing year vegetable oil imports at 0.719 million tons. Imports in October-December 1990 were 0.23 million tons. Gorbachev said that the USSR would import 0.277 million tons in January-March 1991. Another report said that the Government discussed a proposal to import 1.13 million tons in 1991. That report noted that 0.3 million

tons of vegetable oils are used for industrial purposes each year.⁴⁹ Soviet butter imports were up 16 percent in 1990. The 1990 shipments included about 37,000 tons from U.S. Commodity Credit Corporation stocks.

With the chronic feed protein shortage for livestock, a cutback in animal inventories and meat production because of lower consumer demand might not result in a commensurate drop in feed protein imports. However, Soviet meal imports started to fall in 1990 after remaining above 3.3 million tons during 1987-89 (figure 18). Imports fell each quarter during January-September 1990, and were only 25 percent of the 1989 level in July-September. In the first 9 months, imports were 2.048 million tons, compared with 3.143 in the same period of 1989. Shipments from the United States in late 1990 raised the final number. Still total meal imports likely were more than 30 percent below 1989's 3.567 million tons.

The Soviets cut oilseed-related imports to about \$0.8 billion in the first 9 months of 1990, from \$1.45 billion in all of 1989. The primary reason for the savings was lower import volumes. Furthermore, they paid 13 percent less per ton for soybeans and 22 percent less per ton for oilseed meal than in 1989. Prices for vegetable oil were up about 5 percent. Prices for soybeans and soybean meal are expected to give the Soviets an additional budget break in 1991. Forecasts have soybean export prices down somewhat in 1990/91 and soybean meal prices unchanged. Prices for soybean oil, however, are forecast to be up substantially over 1989/90's.

The decline in 1990 imports is related to disarray in the Soviet import decisionmaking process. The decline in meal imports hurt poultry production at large complexes. The drop in vegetable oil imports added to the disequilibrium in the consumer market. Why the Soviets chose to increase imports of manufactured and nonfood consumer goods, while further shorting the protein supplies of the mixed feed industries and cutting

Figure 17
USSR Edible Vegetable Oil Imports*

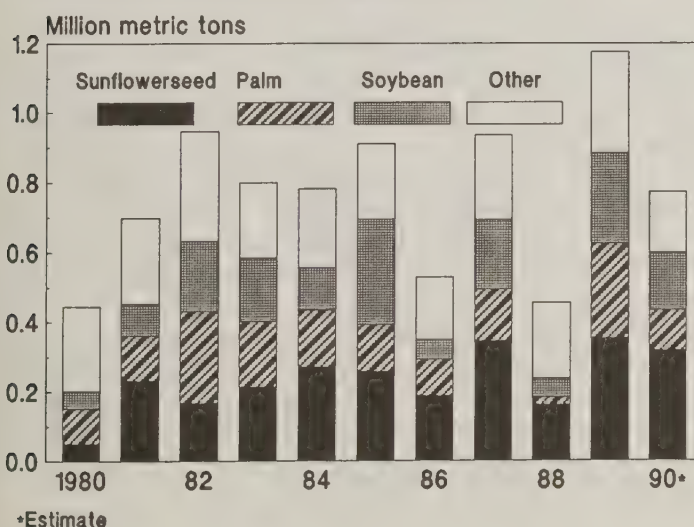
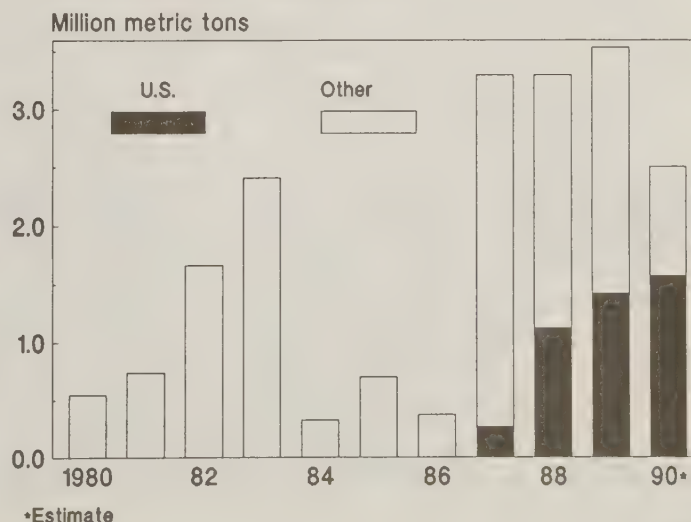


Figure 18
USSR Soybean Meal Imports



vegetable oil imports is difficult to understand. The Soviet priority on nonfood consumer goods and capital imports is expected to continue, even with constrained exports earnings.

Interest in low-cost agricultural imports, at subsidized prices and credit terms, should affect Soviet choice of suppliers more than the total import level. However, the United States continued to capture large Soviet sales without special terms in 1990. The United States sold the USSR between 1.1-1.6 million tons of soybean meal each year, 1988-90, without any subsidies or credit. The U.S. captured over 40 percent of the Soviet market during this period and perhaps over 60 percent in 1990. The United States had about 50 percent of the Soviet soybean import market during 1988-90 without credit or subsidy programs. On January 8, 1991, USDA announced that \$130 million of the \$1 billion in credit guarantees made available to the USSR under the Commodity Credit Corporation's Export Credit Guarantee Programs (GSM-102) for fiscal 1991 would be for protein meals. These include soybean, cottonseed, linseed, and sunflowerseed meals. Later USDA raised the allocation to \$142.7 million and added \$28 million for soybeans.

The U.S. vegetable oils are apparently not as competitive, with only very small, occasional sales. In 1989, sunflowerseed and soybean oil imports from Argentina and palm oil imports from Malaysia dominated the USSR market. Speculation about coverage for vegetable oil exports to the USSR under the U.S. Export Enhancement Program continues.

Sunflowerseed oil accounts for almost all Soviet vegetable oil exports. Half have gone to Cuba. In the first three quarters of 1990, vegetable oil exports were down 26 percent to 89,000 tons. Total exports in 1989 were 138,700 tons. The Ukraine had reached agreement to begin to barter vegetable oil for Polish manufactures and services. The recent prohibition of barter agreements is aimed at bringing more foreign currency

resources to the Government. The ban will hinder republics and enterprises' attempts to expand foreign trade. This hindrance will affect not only vegetable oil exports, but also republics' and enterprises' ability to finance oilseed product imports. (Kathryn Zeimetz)

Sugar Import Increase in Doubt

Soviet sugar imports in 1991 should be up from 1990's low level based on the change in domestic sugar production from the sugarbeet crop (table 43). According to President Gorbachev's December report, January-March 1991 sugar imports were to be 1.9 million tons, up 70 percent from first quarter 1990 and 30 percent from first quarter 1989. However, the 135 percent retail sugar price increase on April 2 should not only eliminate excess demand, but also might cut the quantity consumed for the rest of the year. Sugar sales remained rationed in most of the USSR entering 1991.

A March 19 decree maintained fixed retail prices for vodka and kept them at the 1990 price level. Officials believe that increases in vodka prices would lead to renewed large domestic purchases of sugar for alcohol production. According to Soviet estimates, the equivalent of half of the 4.5 million tons of sugar produced from imports in 1989 went into producing moonshine.⁵⁰ Vodka retail prices recently were 20 times as high as the production costs of moonshine. The retail sugar price increase still leaves the differential high.

Much of any 1991 import increase will be from residual suppliers. Cuba for political reasons has been the primary supplier despite the relatively high prices it charges the USSR. In the first 9 months of 1990, the Soviets report that they paid Cuba \$1,600 per ton for sugar, using the official trade exchange rate. This is 30 percent above 1989's level. They paid other suppliers an average of \$293 per ton. However, Cuba pays disproportionately high prices for Soviet oil and other goods that lower the subsidy to Cuba. Still, the Soviets

Table 43--Sugarbeet area, production, and government purchases and sugar production and trade, USSR 1/

Year	Sugarbeet			Sugar production		Imports		Refined	Exports refined
	Area	Production	Purchases	Total	Of which from beets	Total	Raw		
						Total	From Cuba		
1,000 metric tons									
1966-70 average	3,582	81,118	74,426	10,203	8,638	2,082	2,081	2	1,097
1971-75 average	3,527	75,984	67,907	9,694	7,771	2,154	1,812	82	249
1976-80 average	3,745	88,732	76,910	10,854	7,370	3,845	3,374	439	139
1981-85 average	3,504	76,379	68,202	11,644	7,240	4,885	3,495	827	184
1986	3,399	79,272	70,689	12,729	8,000	5,158	3,861	23	301
1987	3,404	90,689	78,924	13,680	8,800	5,035	3,750	20	159
1988	3,370	87,855	78,007	12,056	8,200	4,094	3,004	127	213
1989	3,345	97,500	91,858	13,341	8,770	5,019	3,468	371	171
1990	3,268	81,200	73,900	12,200	8,426	2/ 3,900	3/ 3,300	3/ 50	3/ 200

1/ Official Soviet calendar year data (except where noted), refined basis except raw imports. The factor for converting raw to refined is 0.92. 2/ *Ekonomika i zhizn'*, No. 18 (1991). 3/ ERS estimates.

trade 5 or more tons of oil for a ton of Cuban sugar, while they export 2-3 tons of oil to the West to pay for a ton of sugar from other suppliers. Cuba's price to the USSR should fall with the new terms of trade emerging between the USSR and its CMEA trading partners. A Soviet trade official said that in 1991, "the trade volume projected for 1991 is close to the traditional average. The amount of money involved, however, has been somewhat reduced because of the switch to international market prices."⁵¹

Early 1990 Soviet statements that Soviet sugar imports would be down substantially in 1990 proved true. In the first 9 months of 1990, imports of raw sugar at 3.7 million tons were down 23 percent. Imports from Cuba declined only 4 percent to 3.264 million tons. However, imports from other suppliers were down almost 70 percent. Imports of refined sugar for January-September 1990 were 3,500 tons compared with 227,000 tons in the same period of 1989. With raw imports traditionally light in the fall as Soviet refineries and transport are dealing with domestic production, total sugar imports in 1990 were the lowest since 1976.

The large 1989 sugarbeet crop, with record sales to processors, contributed to the low 1990 imports. The 1990 sugar beet crop in comparison was the lowest since 1986 and 17 percent below 1989. Area was down 2 percent. Sugarbeet yields were down over 15 percent. Prolonged periods of rainy weather in certain areas, coupled with the inadequate equipment for the wet conditions and reduced ability to compel urban workers to harvest, contributed to lower sugarbeet output. Furthermore, although the percentage of sales to refiners remained high, it did not match 1989's. Thus, sales to processors were down 20 percent.

Sugar production from domestic beets, however, was only down 4 percent from 1989. The reason was a 19 percent increase in the extraction rate, to 11.4 percent. The processors said that the better extraction rate was due to drier end-of-season conditions in the Ukraine during harvest, the prime producing area. In addition, the processors were reportedly better organized. In fact, a dispute broke out in late 1990 about shipments of sugar from processors. The refineries claimed that they had to slow processing when the railroads did not meet schedules and refined sugar accumulated at plants. The railroads countered that the refineries in the Ukraine were withholding shipments with the consent of the Ukrainian officials. Despite the improvement in 1990 extraction rates, the Soviet sugar yield from sugarbeets remains below potential.

Part of the reason for low sugarbeet and sugar yields has been the perversity of Soviet producer prices. With zonal prices resulting in increased prices in higher-cost areas and supplements for inefficient growers, efficiency and specialization were not rewarded. If the prices for

marginal areas and farms are reduced and efficient producers respond to higher prices, agricultural efficiency should improve. The Government raised the sugarbeet procurement price almost 40 percent, on average, in 1991. In addition, producers will receive a 5 percent premium for each percent increase in sugar content of beets over the minimum level.⁵² The net effect of the price shifts is difficult to assess as farms face changed prices for most agricultural products in 1991. The new sugarbeet price, however, leaves its profit margin (based on Soviet methodology) much lower than for grain and sunflowerseeds. With corn production averaging only 16 million tons, the USSR remains heavily committed to sugar as opposed to high-fructose corn syrup as a sweetener.

One cause of sugar content losses lies in the lack of capacity at the refineries in the major producing areas--Black and Non-Black Soil Zones and the Volga region--and excess capacity in other regions. One report says that Omsk sent tens of thousands of sugarbeets to Altai Kray for processing (a distance of 500-plus kilometers). More incredibly, sugarbeets from Voronezh (3,000 kilometers distant) were also shipped there.⁵³ One reason for the lack of refining capacity in major producing areas has been high taxes on the sugar industry. In 1990, the Government took 63 percent of sugar industry profits.⁵⁴ The 1991 decree sets a standard tax rate of 35 percent on profits for all industries. This rate should leave more funds available to the refineries. (Yuri Markish and Kathryn Zeimetz)

Will Republics Control Cotton Exports

Cotton exports for the USSR, one of the world's three largest producers, are especially difficult to forecast in 1991. Changed Soviet foreign trade rules, increased republic autonomy, and the changed terms of trade among the CMEA countries complicate the analysis for the USSR's most important domestic agricultural export (table 44). In the past, the preponderance of exports at special prices to socialist countries made identifying the effect of prices on exports difficult. During the 1980's, a close relationship between domestic production and exports was also difficult to demonstrate (table 45).

Soviet exports in the first 9 months of 1990, at 425,000 tons, were down over 13 percent compared with the same period in 1989. The decline was due to a 60 percent decrease in exports to the West. Exports to Eastern Europe were up over 8 percent, up even more to other socialist countries, partially offsetting the decline. The share of exports to non-Western countries was 85 percent in the first 9 months of 1990, compared with 67 percent in the first 9 months of 1989. Final exports in 1990 would have exceeded 600,000 tons if exports were seasonally heavy in the last quarter. However, exports almost ceased in the fourth quarter of 1990. Fourth quarter 1989 exports were 375,000 tons. Exports for

1990 totaled only 490,100 tons, the lowest since at least 1970.⁵⁵

One hypothesis offered is that Soviet cotton farms withheld sales, as did grain and other producers. However, the farms sold seed cotton quickly and exceeded the order by 3 percent. In Uzbekistan, farms sold the State 5 percent more than required by the order. The purchases of lint by grade were: first 46 percent, second 39, third 9, and fourth 6 percent. Another explanation offered is that the Central Asian republics blocked sales as they sought effective control over cotton resources. The republics and even enterprises have had the legal right to export since 1989 and the right to dispose of production above the orders.

Uzbekistan says that in 1991, only the republic will export. This fits with speculation that the republics will be the export licensors after the first quarter of 1991. Whether the republics will use the national foreign trade organization *Novoeksport* as an intermediary was not stated. In 1991, the foreign currency retention rates for cotton exporters might be down and thus decrease the incentive to export. In addition, a January 1991 Council of Ministers resolution imposed a 25 percent national export tax on industrial raw ingredients for weaving.⁵⁶

Table 44--Agricultural exports, by value, USSR

Commodity	1987	1988	1989
	\$ Millions 1/		
Wheat	145.1	166.4	177.3
Barley	2.6	4.2	4.2
Corn	17.6	38.3	24.4
Oats	0.8	2.1	1.9
Other Grain	2.0	2.2	2.4
Rice	18.1	5.6	17.4
Flour-milling products and pulses	136.7	106.6	126.6
Subtotal	322.9	325.4	354.2
Meat and products	58.3	56.0	46.3
Milk and products	55.4	55.8	53.6
Animal fats including butter	96.1	85.0	81.8
Wool	43.0	35.2	42.8
Furs	226.6	169.2	116.7
Raw hides	130.8	219.5	130.0
Vegetables, fruits, and nuts	77.1	80.7	73.5
Sugar, refined	48.4	69.9	59.6
Confectioneries	9.4	9.3	6.0
Beverages	199.7	209.0	164.5
Tobacco products	6.6	6.2	5.5
Oilseed, tobacco, and other raw materials	41.2	41.2	50.0
Natural fibers	1,442.9	1,479.3	1,482.2
Cotton	1,381.5	1,440.9	1,454.8
Vegetable oils	68.8	84.9	80.4
Technical fats and oils	5.0	18.7	13.5
Seeds and planting materials	42.7	42.9	45.0
Total	2,874.7	2,988.2	2,805.5

1/ USSR official data converted at \$1.58 in 1987, \$1.65 in 1988, and \$1.58 in 1989.

Another hypothesis is that the USSR withheld cotton exports to CMEA countries as it withheld oil exports. Part of the motivation would be to make sales under the new terms of trade in 1991. The decline in exports to CMEA countries in the last quarter reportedly occurred across the board. The large amounts usually exported may not easily find domestic buyers. Soviet domestic demand for cotton may be dampened by recent consumer price increases for cotton products. The April retail price change increased prices for some cotton fabrics 3.5 times and cotton apparel between 2.4 and 3 times. Furthermore, the prices of synthetic fabrics are not subject to such large increases. However, chemical fiber production was down 5 percent in 1990 and in January 1991 production was 15 percent below a year earlier, which should cut supplies of synthetic fabrics.

The decision to denominate trade with the CMEA countries at world prices should lower the value of Soviet cotton exports, even if volumes remain constant. The Soviets sold cotton at inflated prices under the distorted terms of trade within the council. Thus, in the first 9 months of 1990, the average price of a ton of cotton sold to CMEA countries (\$2,213) was a third higher than that sold to others.

Uzbekistan announced that it will introduce taxes on exports of cotton outside the republic to raise revenues. The Central Asian republics would like to increase earnings from yarn, fabric, and garment exports, as well as domestic sales. The Central Asian republics complain that the value added to cotton production accrues largely to European areas. Data on yarn or fabric production by republic are not readily available. However, data do show that European republics produce 75-80 percent of the knitted wear. The Central Asian republics estimate

Table 45--Lint cotton production and trade, USSR 1/

Year	Production	Imports	Exports	Domestic supplies 2/
	1,000 metric tons			
1980/81	2,700	22	916	1,806
1981/82	2,402	26	949	1,479
1982/83	2,312	177	774	1,715
1983/84	2,172	166	642	1,696
1984/85	2,597	187	659	2,125
1985/86	2,782	88	713	2,157
1986/87	2,660	75	783	1,952
1987/88	2,502	90	731	1,861
1988/89	2,762	77	791	2,048
1989/90 3/	2,686	55	490	2,251
1990/91	2,600	NA	NA	NA

NA = Not available.

1/ USSR published data, except ERS production estimates for 1981-84 based on USSR 1987 data of 2,453-million-ton average for 1981-85. Calendar year trade beginning with 1981 data for 1980/81. 2/ Production minus net exports. 3/ Trade numbers from *Ekonomika i zhizn'*, No. 18 (1991).

that a resident textile industry would have increased their incomes from cotton three times. They estimate that the production of cloth would have doubled the income again.⁵⁷ The interest in developing textile industries also results from the large surplus of labor in the region. In 1991, Uzbekistan is limiting ginning of Uzbek cotton bolls outside the republic.

For the first time, the cotton fair was in Uzbekistan and not in Moscow. Representatives of 240 organizations and enterprises were present at the Tashkent event. They could buy cotton of any grade at list prices, but only in the amount specified by the State order. Those who wanted to purchase any additional cotton, had to pay prices 2-3 times higher.⁵⁸

Area is expected to be down for the 1991 crop. In Uzbekistan, a decree says that cotton area will be reduced as over 100,000 hectares of irrigated arable land is transferred to private plots. Cotton is to occupy 61 percent of planted area compared to 65 percent in 1990. Under a similar decree about 100,000 inhabitants expanded their holdings, as cotton area declined 144,000 hectares in 1990. The breakdown in interregional trade might also cause land to be shifted from cotton production. A 1991 decline of 20,000 hectares in one Turkmenistan oblast was caused by the need to produce grain, now that other areas restrict outshipments.

The profitability of cotton and its importance to the region will possibly limit further area reductions. The Government raised the purchase price for a ton of cotton 61 percent in Uzbekistan in 1990. The increase will be effective for all republics in 1991. According to Soviet measurements, cotton production profitability increases 22 percent with the new producer prices. According to Soviet data, the shift to new procurement prices raises profits to 7,000-9,000 rubles per hectare. Vegetable profits range from 1,500 to 1,800 rubles per hectare, rice 1,200-1,750 rubles, alfalfa seeds 2,400 rubles, fodder beets no more than 1,300 rubles, and grapes 2,500 rubles.⁵⁹

Officials lowered production goals as cotton area declined. The 1991 goal for Uzbekistan is 1.4 million tons. The republic is cutting procurement plans about 4 percent. Yields the last three years have kept average production at high levels and might do so in 1991 (table 46). Soviet lint yield in 1990 was the highest since 1985. Extra-long staple seed cotton production increased from the low 1989 level. Procurements of extra-long staple cotton, 318,000 tons, were 17 percent above 1989's.

Weather conditions were largely favorable for early ripening of the cotton crop, although farms reseeded about 300,000 hectares in Uzbekistan after spring rains and dust storms. Yields for 1988-90 have averaged higher than since the 1970's. The increase in yield has occurred despite poor weather at times, especially for the 1989 crop. The high yields have occurred as the Soviets have cut cotton area and possibly excessive fertilizer applications. Cotton area in 1990 was down 10 percent since 1987; in Uzbekistan the cotton area declined by over 13 percent during the same period.

Table 46--Cotton production, USSR

Republic	1981-85	1986	1987	1988	1989	1990
Million hectares						
Area						
USSR	3.242	3.475	3.527	3.432	3.338	3.164
Uzbekistan	1.931	2.054	2.108	2.017	1.970	1.826
Turkmenistan	.532	.650	.633	.636	.633	.621
Tadzhikistan	.308	.313	.324	.320	.309	.304
Azerbaijan	.297	.300	.303	.299	.280	.263
Kazakhstan	.130	.129	.128	.128	.119	.120
Kirgizia	.044	.029	.031	.032	.027	.030
Million tons						
Seed cotton production						
USSR	8.314	8.234	8.084	8.690	8.566	8.304
Uzbekistan	5.159	4.989	4.858	5.365	5.292	5.058
Turkmenistan	1.142	1.138	1.272	1.341	1.382	1.457
Tadzhikistan	.917	.922	.872	.963	.921	.841
Azerbaijan	.707	.784	.697	.616	.582	.543
Kazakhstan	.302	.333	.312	.325	.315	.324
Kirgizia	.087	.068	.073	.079	.074	.081
Extra-long staple seed cotton						
USSR	1.088	1.188	1.179	1.334	.921	1.010
Uzbekistan	.494	.584	.531	.561	.344	NA
Turkmenistan	.304	.295	.372	.444	.441	NA
Tadzhikistan	.289	.309	.276	.329	.136	NA
Lint production						
USSR	2.453	2.660	2.502	2.762	2.686	2.600
Uzbekistan	1.509	1.622	1.505	1.732	1.673	NA
Turkmenistan	.335	.354	.380	.410	.423	NA
Tadzhikistan	.278	.293	.276	.294	.276	NA
Azerbaijan	.212	.262	.225	.203	.192	NA
Kazakhstan	.093	.108	.096	.099	.099	NA
Kirgizia	.026	.021	.020	.024	.023	NA

NA = Not available.

Source: *Narodnoe khozyaistvo* (1989), and Republic Plan Fulfillment Reports for 1990.

Improved incentives are behind the increased yields. In Uzbekistan for 1990, the Council of Ministers recommended that collective and State farms pay workers ten rubles per ton for machine-picked cotton and 25 kopeks per kilogram for hand-picked cotton. Previously, a driver received 4 rubles per ton for machine-picked cotton, while a field worker received 11 kopeks per kilogram for manually-picked seed cotton.⁶⁰

The early ripening, higher prices, and leasing and contracting relationships introduced into the industry helped speed the 1990 harvest and sales. Machine picking accounted for over 60 percent of the total harvest, and led to a record harvest pace. A fast pace is important with the USSR's relatively short growing

season. However, the decline in hand-picking lowered incomes for some Central Asian laborers.⁶¹

Machine-picking increases defoliant requirements. For example, the Soviets estimate that to raise machine-harvesting in Uzbekistan to 60 percent requires the defoliation of 1.4 million hectares. Following the ban on the Soviet toxic defoliant BUTIFOS, Soviet scientists have not offered better alternatives than magnesium chloride and calcium chloride. Farmers have used these agents unsuccessfully in the past. Use of the more effective, but also much more expensive, defoliant DROPP (bought with hard currency from Germany) might increase. Most defoliants in Uzbekistan are applied at ground level. Aircraft use is insignificant.⁶² (Yuri Markish and Kathryn Zeimetz)

Food Problem a Result of Monetary Imbalance

The food economy problems that intensified under Gorbachev and contributed most to the deepening Soviet food crisis do not primarily involve production. Increasing food shortages do not mean that Soviet per capita food production, or even consumption, has decreased. The shortages, rather, mainly result from over-stimulation of demand, caused by recent wage, price, monetary, and subsidy policies. The main consequence of these policies is that domestic currency is further losing power as a means of exchange. The results are inefficient barter throughout the economy, hoarding, growth of autarchic behavior by republics and regions, creeping dollarization, and strengthening of the black market.

The first reaction to food shortages might be to think that supply is insufficient, and that efforts should be focused on increasing agricultural output. Because the productivity of Soviet agricultural inputs (especially labor and capital) is much lower than in the industrialized West, potential exists for efficiency gains that would substantially increase production. Also, a large share of Soviet agricultural output is wasted. Soviet officials cite losses of 20 percent for grain, and perhaps as much as 50 percent for potatoes and certain fruits and vegetables (though these figures probably include field and harvesting losses, not purely post-production waste). The high degree of loss is largely because downstream agricultural activities--storage, transportation, and processing--are especially backward and wasteful.

Nonetheless, levels of Soviet food consumption are not all that unfavorable compared even to developed countries. The UN Economic Commission for Europe reports that in 1988 per capita meat consumption in the USSR was about 57 kilos, compared to 67 and 62 for Britain and Finland, respectively.⁶³ Also, production of most agricultural goods has not fallen under Gorbachev. During 1986-90, average annual grain and meat output equaled 213 and 19.3 million tons, respectively, compared to 180 and 16.2 million tons during 1981-85.

The main cause of the shortages, rather, is over-stimulation of demand. Recent wage, price, monetary, and subsidy policies have seriously upset the demand for and distribution of goods throughout the economy. These policies, and the resulting problems and imbalances, have existed to some degree in the USSR all through the postwar period. Yet, conditions have worsened considerably during the Gorbachev years. Food shortages are the most prominent and politically serious manifestation of the imbalances.⁶⁴

The Nature and Cause of the Financial Problems

A goal of economic reform under Gorbachev has been to increase the decisionmaking power of enterprises and

make them more financially self-supporting. However, to help enterprises make these adjustments, the State, misguidedly, substantially increased funds available to them. One way was by reducing the enterprise profit tax.⁶⁵ Also, the State banking system lent generously to enterprises, negating the objective behind self-financing, which was creating an efficiency-raising hard-budget constraint. In the decentralization program, one of the areas in which enterprise freedom was increased most was wage-setting. Enterprises used this power and the increased funds to raise workers' monetary wages in excess of productivity gains. This reaction was understandable, given enterprises' traditional worry that there will be insufficient inputs, including labor, to meet mandated output targets.

From 1985-1990 average monthly wages in the USSR increased 42 percent.⁶⁶ Labor productivity grew, however, only about 7 percent.⁶⁷ The result has been strong demand-led inflationary pressure. Rather than face the political fallout from open price inflation, the State has opted for repressed inflation, especially for foodstuffs. The official index for retail prices in State stores and cooperatives rose between 1985-1989 in the aggregate by only 6 percent, with food prices rising by 11 percent.⁶⁸ Shortages are the result, in the microeconomic sense that at low State prices, consumers wish to purchase more of most foodstuffs (especially meat) than the State has available for sale. Excess demand stimulated by income growth also exists for other types of consumer goods and services, not just food.

The combination of a rise in money wages in excess of productivity growth and low State prices for consumer goods explains most of the money-related imbalances in the Soviet economy. At the microeconomic level, a disequilibrium of excess demand exists for most foodstuffs, as well as other goods.⁶⁹ At the macroeconomic level, total monetary income has increased in past years by amounts greater than the rise in the value of consumer goods available for sale at existing prices. Soviet estimates of the resulting surplus purchasing power fall between 150 and 300 billion rubles. This surplus is commonly identified as the monetary overhang.⁷⁰

Soviet consumers have simply been earning more money income than they can spend. To the extent to which enterprises obtained the funds necessary to raise wages from the banking system, the rise in income was directly matched by destabilizing growth in the money supply. Lastly, the means by which enterprises obtained or retained funds to raise wages contributed to the State budget deficit. The reduction in the tax rate on enterprise profit lowered State revenue. Also, enterprise debt from borrowing from the banking system created, either directly or indirectly, liabilities to the State budget. At 81 billion rubles in 1989, the State budget deficit equaled nearly 10 percent of gross domestic product.

The Effects of Monetary Imbalance

As mentioned, the overhang is estimated to be between 150 and 300 billion rubles; in comparison, the value of all consumer goods produced in 1990 in retail prices was only 459 billion rubles.⁷¹ The large overhang has created what this writer believes to be the Soviet economy's most serious immediate problem--the decline of the domestic currency as an accepted means of exchange. In an economy of excess demand, money alone cannot guarantee purchase--access becomes decisive. For many foodstuffs, access requires being in the front of increasingly long lines. Access is also obtained through the potentially corrupting means of influence and nepotism.

If money cannot be used as a means of exchange, barter will ensue. Barter, with its inevitable inefficiencies, is growing throughout the economy--at the personal, regional, and republic level. The partial reforms of the Gorbachev years were intended to lessen the planned command system for distributing goods. Negotiated exchanges between enterprises based on money prices were to replace it. If money, however, does not have exchange power, a more decentralized distributional system can be paralyzed. Thus, many republics will surrender food only in return for other goods, not rubles. Russia has likewise threatened to exchange its natural resources only for other real products. The well-publicized food shortages in Moscow and Leningrad this winter that motivated food aid by Western countries was the result mainly of central suppliers' inability to purchase enough food from the countryside. This not not because the food was unavailable, but because unattractive rubles alone were being offered in exchange.⁷²

In the more centralized pre-Gorbachev economy, money-based exchange was less important to the movement of goods. The partial decentralizing reforms under Gorbachev greatly enhanced the role that money should play. The weakening of money-based exchange during the last two years, however, partly explains why the State has recently restrengthened the command side of the economy.

A corollary development to barter is hoarding. In a barter economy, goods themselves become the means of exchange, and thus also the main store of value. Hence, hoarding. One Soviet economist cites surveys indicating that "83 percent of the population has food stocks two to four times in excess of need."⁷³ Anecdotal evidence indicates that households might have an entire year's supply of some consumer good, say tea, to exchange for other goods. Hoarding of foodstuffs, however, exacerbates physical waste. Also, even if durable, goods of real use value should be consumed, not wasted functioning as an ersatz money supply. Many Soviet reformers have been arguing that development of a market system is essential not just for its economic benefits. In the face of centrifugal nationalist pressures,

the political union can be maintained only if based on voluntarism and mutually beneficial economic interaction between republics and regions, which only an economy-wide market can provide. Yet, the weakening of the ruble and subsequent hoarding have encouraged autarchic attitudes within republics and regions. Some republics are considering establishing their own currency. Such sentiment is strengthening nationalist pressures for separatism.

Another consequence of the decline of the ruble as a means of exchange is creeping dollarization of the economy. Hard currency is becoming necessary for many transactions, for natives as well as foreigners. Yet, dollarization has the merit of establishing foreign currency as an accepted domestic means of exchange.

A final consequence of the shortage economy is that the black market is growing, and the distinction between legal and illegal activity is becoming increasingly blurred. Much second-economy activity in the USSR results from the effort to find higher, more efficient prices for goods above the State prices that are set below market-clearing levels. The black market can be viewed as an attempt to defend the ruble as an accepted means of exchange by creating market clearing prices in rubles. The growth of an efficient black market, which Western and Soviet reform economists might see as the forerunner of an economy-wide market system, nonetheless creates risk and uncertainty among its participants that the State might thwart or punish such behavior. The Government is presently cracking down on the second economy, giving the KGB access to commercial records of domestic and foreign enterprises. Some of the targeted illegal activity is economically harmful and morally indefensible, such as extortion. Yet, much of the crackdown will involve resisting by legal force the forces of arbitrage that low disequilibrium prices inevitably create.

The costs of the shortage economy are consumer frustration and uncertainty, and the inefficient use of time by consumers, black marketeers, and the State. The time could be more productively employed in a well functioning market system. In addition, there is the waste and overall retarding effect on economic activity of a barter, hoarding economy. Consumer frustration can reduce worker incentives and thus productivity, which decreases the size of the pie to be inefficiently distributed.

The main harm of the growing inflationary pressure in the Soviet economy, though, is that it has hamstrung the entire economic reform. The partial decentralizing reforms under Gorbachev moved the economy toward a freer, more money-based market system. Movement to free markets, though, would substantially increase consumer prices, especially for foodstuffs. Despite the many problems from repressed inflation, the Government has felt that high, open inflation would

bring greater consumer and worker dissatisfaction, and is thus less politically palatable. Inflationary pressure, then, is inhibiting the Government from allowing the key ingredient of a well-functioning market system--market determined prices.

Ways of Eliminating the Monetary Overhang

Whether or not the Government wishes to continue market-oriented reform, the destabilizing problem of the ruble overhang must be dealt with. The most commonly offered solution in the Soviet press is to increase the supply of consumer goods, especially food. The critical issue, though, is how such saturation of the market is to be achieved. Since the main problem originated because money wages rose in excess of productivity gains, the most felicitous solution would be for productivity to increase without the requirement of a corresponding increase in money wages. In the overall food economy, decreasing waste is one way higher productivity could be achieved. If, however, greater productivity can be motivated only by higher wages, the existing stock of overhang will not diminish (though it would stop growing). However, recent years justify the pessimism that in the present unreformed economy, higher productivity is not likely, with or without increases in money wages.

Additional output of consumer goods could be obtained, though, from a reallocation of productive resources from nonconsumer to consumer goods. The opportunity cost would be less capital investment and military output. Such a reallocation is in fact occurring, but the economy's general inflexibility makes conversion difficult and lengthy. Another possibility, promoted by various Soviet economists, is to borrow heavily from the West to purchase Western consumer goods, particularly luxury items that can be sold at inflated domestic prices. The cost is paying back the loans with future exports.

Rather than increasing the supply, or flow, of saleable consumer goods, another approach for reducing the ruble overhang would be to sell off the existing stock of State assets, including farmland. Private property, though, is a threat to the planners and party functionaries whose jobs directly depend on State ownership and control. Also, private ownership of the means of production carries the ideological cost of striking at the very definition of socialism.

If rubles cannot be absorbed from an increase in saleable goods or property, then two unattractive alternatives remain. The first is reducing the ruble's purchasing power through price rises. Repressed inflation would thus be made open. Strong ideological and social opposition to open inflation exists, particularly for consumer necessities such as food, clothing, and rent. Thus, discussion of price increases has inevitably involved the issue of compensation for loss of purchasing power. The most commonly argued position by Government and

party figures (as opposed to economists) has been for large or full compensation (at least in principle). Although price rises accompanied by full compensation would bring consumer prices for many goods closer to production costs, such changes would not reduce the existing money overhang. Increases in purchasing power from new money emission would negate the decline in purchasing power from price rises.

As discussed in an earlier section, on April 2 the Government raised prices substantially for many goods, including foodstuffs. Compensation will be made in the form of wage supplements, upward adjustment in personal savings accounts, and special payments for children and other dependents. Prime Minister Pavlov is on record that the total adjustment package will compensate for about 85 percent of the price increases.

The second approach would be some sort of confiscatory monetary reform. Some fraction of the existing supply of currency would be taken out of circulation and destroyed. The Government recently chose this politically difficult policy. In late January it abolished 50 and 100 ruble notes as legal tender. Although provisions exist for partial compensation with smaller denomination banknotes, the Government stated that a major objective of the policy was to take at least 10-15 billion rubles of notes out of circulation.⁷⁴ The Government claimed that foreign and domestic speculators and black marketeers would almost exclusively bear the loss.

Of 48 billion rubles worth of 50- and 100-ruble notes, 40 billion had been turned in as of January 25.⁷⁵ Since some of this amount will not be returned to the population, the State might succeed in taking 15 billion rubles out of circulation. Yet, the total money supply in the consumer side of the economy (individuals' bank deposits plus currency) is presently about 515 billion rubles, and the monetary overhang is estimated at 150-300 billion rubles.⁷⁶ Thus, this monetary action will reduce the size of these two aggregates only modestly.

An argument can be made that individuals throughout the world believe that increases in money wages, even if not justified by higher productivity, are deserved, and carry the promise of an increase in their standard of living. If true of Soviet workers during the 1980's, then all the realistic alternatives identified for eliminating the monetary overhang and restoring the ruble's power as a means of exchange necessitate that some groups suffer (at least in the sense that expectations will not be met). For a variety of reasons, the regime apparently will be unable to mop up most of the ruble surplus by increasing the quantity of consumer goods or selling property. The ruble's nominal purchasing power will therefore have to be attacked, either through open inflation or a confiscatory monetary reform. Attacks have already been made. The Government's difficult challenge is to eliminate the overhang and thereby restore financial and consumer market equilibrium at minimum social and political cost. (William M. Liefert)

Soviet Agrarian Restructuring

For some time Soviet agriculture has been almost entirely confined to 50,000 very large Soviet State and collective farms averaging approximately 10,000 hectares of agricultural land. Besides these farms and some other State enterprises there have been only the so-called private plots, which until 1987 were limited by law to no more than one half hectare and given to workers for their part-time use by the State and collective farms which employed them. In 1989 these plots accounted for only 2.8 percent of the Soviet Union's arable land (or 1.6 percent of all agricultural land).

Individual Farm Sector Small, but Growing

In the past three years a new kind of individual farm (Russian: *ferma*) has developed. This is not as a subsidiary enterprise, but is operated on a full-time basis largely by family units independent, in principle, from the State and collective farm. By the beginning of 1991, 40,600 such farms were operating, scattered across the USSR, but concentrated mainly in the Baltic republics (Latvia, Estonia, Lithuania), Georgia, and in certain pockets in Russia and the Ukraine (table 47). The average size of these farms was 17 hectares, but this varied by region, from a fraction of a hectare in mountainous areas of Georgia, where collective farms were broken up to form over 17,000 individual farms, to several hundred hectares in the Ural region of Russia.

In Russia itself, the number of legal individual farm entities having land titles and the right to bank accounts (but not yet necessarily functional) had grown from a reported 900 in July to 4,000 in December 1990, and 8,500 in March 1991. These farms averaged 45 hectares (110 acres) in size.⁷⁷

Table 47--Private farms, USSR

Republic	Number		Hectares	
	7/1/90	1/1/91	7/1/90	1/1/91
USSR	29,547	40,600	369,214	700,000
Russia	900	4,433	30,159	203,900
Ukraine	12	75	307	NA
Belorussia	21	81	375	NA
Uzbekistan	1,076	NA	4,455	NA
Kazakhstan	188	NA	38,339	NA
Georgia	16,516	17,000	7,459	NA
Lithuania	1,718	3,000	29,150	NA
Moldavia	NA	NA	NA	NA
Latvia	6,974	7,200	142,254	NA
Kirgizia	18	NA	1,416	NA
Tadzhikistan	NA	NA	NA	NA
Armenia	2	NA	161	NA
Turkmenistan	NA	NA	NA	NA
Estonia	2,098	NA	54,068	NA
Azerbaijan	24	NA	621	NA

NA = Not available.

Sources: *Ekonomika i zhizn'*, No. 46 (1990); *Izvestiya*, 2/26/91

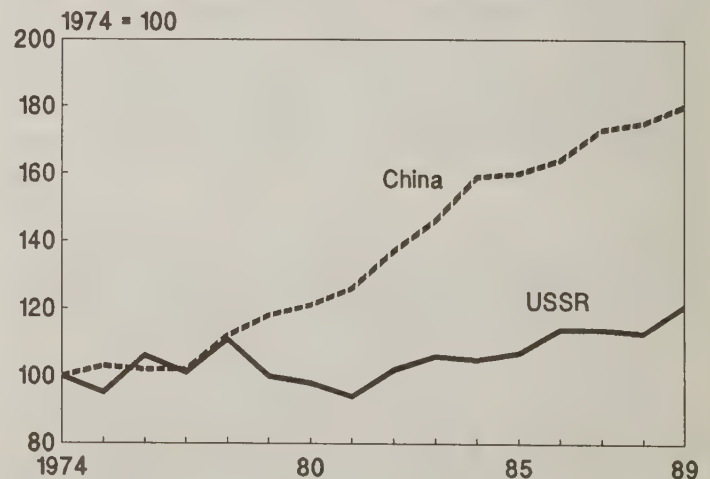
Some have forecast that rapid development of the family farm sector in the Soviet Union will result in large increases in productivity causing significant trade effects. China's agricultural success after eliminating the commune and establishing the 'family responsibility system' in the 1980's is often cited to support this prediction. Figure 19 compares the exceptional growth of China's farm production after its reforms, with the relatively stagnant Soviet growth over the same period. In addition, comparisons of the existing Soviet private plot sector with the socialist sector are cited in the same way. While the plots receive a lot of feed from the socialized sector and the crops grown on them are extremely labor intensive, it is true that they have been producing over a quarter of all output while occupying less than 3 percent of arable land.

China's Limits as a Model

While China's experience and the Soviet private plot sector have implications for predicting future Soviet agricultural production, development of the new individual farm sector should be understood within the context of overall Soviet economic reform. There are at least four caveats to optimism about the results from expanding the individual farming sector.

First, the data on the growing number of individual farms is possibly misleading. There are signs that individual farming has achieved the status of the centralized campaign. There is a tendency in the Soviet system to overreport success in attaining the goals of centrally endorsed policies. For instance, it is hard to ignore the recent example of the collective contract system endorsed by Gorbachev in 1982 and 1983 as Central Committee secretary for agriculture. Small labor teams were supposed to have a fair amount of

Figure 19
USSR and China Farm Production Index*



*U.N. FAO data

responsibility, and more autonomy within the large farms to which they belonged. Initial, largely voluntary experiments were apparently successful, but possibly enjoyed preferential treatment. Subsequent growth was ordered by the center and occurred in name only. By 1987, 70 percent of farm workers were formally employed under the new scheme. But, by the late 1980's, officials admitted that little had changed. Certainly, there was no widespread surge in productivity.

Second, individual farms do not yet, and may not soon, represent much actual land. The area in individual farms at the first of this year was only 700,000 hectares, or one-tenth of a percent of total agricultural land. According to the report of an American delegation that visited European Russia and the Baltics in fall 1990, even among proponents few advocate the abolition of the collective farm--such as occurred so rapidly in China.⁷⁸ Despite the growth of the number of individual farms in Russia in early 1991, Vladimir Bashmachnikov, a leading advocate, believes that by 1995 individual farms will occupy only 10-15 percent of the total farmland in Russia. At that, the expansion of individual farming is proving easiest on marginal, rather than the choice, land.

Enthusiasm for individual farms has perhaps been the greatest in Latvia, but even 7,000 farms established by the end of 1990 accounted for less than 5 percent of the republic's farm land. Initial applicants received 10,000-ruble grants to take up farms, but applications reportedly declined significantly at the beginning of 1991, when the tax obligations of individual farmers were specified by a new tax code.

Third, replication of China's success with de-collectivization, even were it to occur, is unlikely unless the entire Soviet economy were to undergo significant transformation. This is true because Soviet agriculture is more complex than the relatively simple relationships between man and land that characterize both Soviet private plots and China's agriculture. The latter tend to be subsistence farming with relatively less reliance on off-farm inputs. A more accurate analogy might be Poland (before the recent radical reforms). Collectivization was halted in Poland in the 1950's. As a result, 75-80 percent of agricultural land remained privately owned, but by farms embedded in a non-market environment. Despite the fact that they are private, Polish farms have not been particularly productive. Analogously, were Soviet farms decollectivized, it would not mean much unless individual farms were freer to market output and buy inputs.

Fourth, and partly because of the difference above, Soviet peasants are much less interested than China's peasants in leaving the State or collective farm, which provides secure, if low, wages. Given the great State subsidy of recent years there is often also a relatively comfortable social infrastructure. On the other hand,

farm workers see many risks in operating on their own. Not the least of these is the lack of implements for small scale tillage and the production risks caused by untimely deliveries and constant shortages of other inputs. In discussions with the American delegation, this problem was mentioned most often by rural workers as a barrier to their becoming individual farmers.

Marketing farm commodities is also a problem, given the virtual absence of middlemen traders. This problem is less apparent now, given the excess demand for food, than it would be were the general macroeconomic balance restored.

Another common fear is that land use rights could be revoked and private investment lost in some future arbitrary change of policy. This calculation will be affected by the outcome of the power struggle still going on between the Communist Party (whose history is so intrinsically hostile towards private farming) and other emerging political forces.

Political Developments

The fears of potential individual farmers are well founded. Even though Gorbachev and some elements of the party have endorsed individual farming, they have done so with reservations. There are other sources of opposition.

State and collective farms are perhaps the major source of opposition. Many of their officials have banded together with Government officials, under the leadership of Tula farm chairman Vasily Starodubtsev, in the USSR Peasants Union (which despite its name has only token peasant membership). Starodubtsev's group advocates continued reliance upon the State and collective farms, and claims that with less State control they "can feed Russia." However, it also wants continued guarantees of high State subsidies for farm prices and investment (in past years, about one quarter of all the investment in the economy). The lobby is powerful and succeeded in 1990 in having all long-term farm debt forgiven as well as a portion of short-term debt. The group does not support the establishment of individual farms, even in marginal areas where cultivation has been abandoned, apparently because it fears the competition for other resources, including machinery, chemicals, and the best-skilled manpower.

Collective and State farms subcontract with private plots and individual farms, but the practice is often cynical. Many families leasing land and equipment from State and collective farms have seen the latter renege on contracted terms for purchasing and input supply. Given little past recourse for defending themselves against the power of the large farms, many lessees have given up. The large farms have also been slow to allocate land to individual farmers (figure 20).

In some localities, individual farmers have found allies, in progressive State and collective farm directors and local government authorities. Leaders at the district or county level (oblast or rayon) control the availability of credit, inputs, construction materials, and services such as road building, machinery repair, and land improvement. Some have acted quite favorably towards individual farms. In the Baltics, Georgia and the Western Ukraine, and in parts of the Russian Non-Black Soil Zone (e.g., Pytalovo in Pskov Oblast, and Pereslavl in Yaroslavl Oblast), local leaders, including party officials, have championed individual farms for the past 2 or 3 years. In most areas, however, authorities are conservative.

But the rights of individual farmers are also being codified in law. By early 1991 each republic had passed land reform legislation authorizing individual farms, as specified by the February 1990 USSR Fundamentals on Land Law. The latter established the individual farmers' right to receive land directly from local governments (the rayon soviets) rather than from State and collective farms. Republic legislation affirms the role of individual farmers to organize to defend their own interests in the courts and parliament.

often by providing legal assistance against State and collective farm management and local government allies in contract disputes.

The Russian State Committee for Agrarian Reform set up March 1991 had personnel in place in each Russian oblast and 40 percent of the rayons. This committee identifies lands to be redistributed from State and collective farms, among other duties.

The Russian law provides for grants of a certain size to be given free of charge to farm workers. These grants vary in size from 4 or 5 hectares in fertile areas such as the Kuban, or well-located suburban areas around Moscow, to fifty hectares in regions of extensive agriculture. Amounts over this, up to a variable maximum, can be purchased. Because of fears of speculation, there are caps on the amount of land any one individual can own (as is the case in much of the world). This maximum also varies by type of farming and climate. Generally, the area is limited to what can be farmed by the family with some hired labor. Russia allowed farms to buy up to a total of 100 hectares or more in marginal areas. Additional area which would involve extensive hired labor can be leased. Moldavia has limited ownership to 50 hectares.

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private property, and it has tried to rally national sentiment around this long-held socialist tenet. Gorbachev's support of this position was an important part of his turn to the right in 1990, in opposition to Boris Yeltsin who has supported both private farms and private land property as central to his agrarian policy.

Strong legislation, such as the Russian republic has, should provide potential individual farmers the assurances they need, but it is weakened by the continuing jurisdictional dispute (war of laws) between the fifteen republics and the central union Government. After losing the fight against private ownership of land in the Russian Congress in December 1990, the Gorbachev Government reiterated its proposal that the matter be determined by a national referendum. Even a referendum would not settle the issue, which awaits resolution of the future relationship between the central Government and the republics.

Factors Promoting Private Farms

While polls show support for individual farms and private land ownership is growing, legal ambiguities and the slow evolution of the overall economic reforms indicate a long slow process of privatization. Several factors, however, could speed this up.

First, the existing socialist farm sector is acquiring an increasingly bad public reputation for its high cost to the State budget. On one hand, this leads (as in the "500 Days Program" of September 1990) to proposals for farm land sales to help eliminate the ruble overhang. The cost of the current farm system leads to proposals to lease or bestow titles to land and other farm assets to individual farmers who forego guaranteed wages in return for freedom, responsibility, and risk taking. It is in the poorest and highest-cost regions (like Pytalovo) that rising land abandonment, demographic flight, and State subsidies have led to the greatest growth of private farming. Much has to be worked out in terms of new methods of land evaluation and taxation, but the pressure to lower costs grows with realization of how fundamentally important resolving the budgetary imbalance is to the solution of the economy's overall problems.

Secondly, the experience in marginal areas (e.g., on new farms in the Baltics, Pytalovo, etc., as well as on private plots) shows that freedom and the prospect of reward do lead to hard work and lower costs. This experience is generalizable. With great effort, some of the problems of farm inputs and infrastructure can be overcome even in the current economy. For example, in Pytalovo the American delegation saw small tractors which had been ingeniously constructed from salvaged trucks and tractors. Private farmers said that if they ever had secure tenure they would drain fields themselves with ditches ("as their grandfathers had") rather than use the expensive tiling methods offered by the State organizations for land amelioration.

If the process of privatization is proceeding most rapidly in marginal areas of Soviet agriculture, it should be remembered that China's early experience in marginal areas led to rapid decollectivization throughout China.

Thirdly, a turnabout in ideology and initial success with privatization could combine with personal interest to cause collective and State farm officials in richer areas to become proponents of rapid privatization. Some prominent farm officials have already taken out land claims, or are staking out choice tracts of land and machinery for their families. Even arch conservative Vasily Starodubtsev's son is considering becoming an individual farmer. As it starts to happen, no one wants to be last. This was demonstrated in China, where cadres rushed to acquire communal assets for themselves. In the USSR, rapid inflation also has increased desire to own real assets for retirement.

Fourthly, the crumbling legitimacy of communist ideology means that market institutions that can serve farming will develop more rapidly. In 1989 reactionary party elements dealt a severe setback to cooperatives by labeling them speculators.⁷⁹ Still, the beginnings of private middleman organizations involved in farm supply, marketing, and service were apparent to the American delegation in the Baltics and Pytalovo in fall 1990. Establishing middleman services would help all types of farm organizations, but especially the smaller individual farms which cannot provide these services for themselves. (Kenneth Gray)

Endnotes

- ¹Semenov, V.N., "Ekonomicheskaya reforma v APK: itogi i problemy", *Ekonomika sel'skokhozyaystvennykh i pererabatyvayushchikh predpriyatiy*, No. 9, 1990, p.8.
- ²From a discussion with Vladimir Bashmachnikov, President of the Association of Peasant Farms and Agricultural Cooperatives of Russia, 3/20/90.
- ³*Ekonomika i zhizn'*, No. 5 (1991), p. 11.
- ⁴*Sel'skaya zhizn'*, 4/22/90, p. 2.
- ⁵*Sel'skaya zhizn'*, 4/22/90.
- ⁶APK: *Ekonomika, upravlenie*, No. 12 (1990), p. 84.
- ⁷APK: *Ekonomika, upravlenie*, No. 11 (1989), p. 4.
- ⁸APK: *Ekonomika, upravlenie*, No. 11 (1989), p. 7.
- ⁹*Khimizatsiya sel'skogo khozyaistva*, No. 10 (1990), p. 3.
- ¹⁰*Khimizatsiya sel'skogo khozyaistva*, No. 5 (1990), p. 6.
- ¹¹*Statistical Press Bulletin*, No. 2 (1991), p. 50.
- ¹²*Khimizatsiya sel'skogo khozyaistva*, No. 11 (1990), p. 6.
- ¹³*Khimizatsiya sel'skogo khozyaistva*, No. 10 (1990), p. 62.
- ¹⁴*Khimizatsiya sel'skogo khozyaistva*, No. 9 (1990), p. 7.
- ¹⁵*Zemlya i lyudi*, No. 45 (1990).
- ¹⁶*Khimizatsiya sel'skogo khozyaistva*, No. 9 (1990), p. 9.
- ¹⁷*Vestnik sel'skokhozyaistvennoy nauki*, No. 9 (1990), p. 36.
- ¹⁸*Vestnik sel'skokhozyaistvennoy nauki*, No. 12 (1989) p. 19.
- ¹⁹*Ekonomika i zhizn'*, No. 48 (1990).
- ²⁰*Vestnik sel'skokhozyaistvennoy nauki*, No. 12 (1989), p. 19.
- ²¹*Voprosy ekonomiki*, No. 11 (1990), p. 97.
- ²²*Pravda*, 9/20/90.
- ²³*Sel'skaya zhizn'*, 1/4/91.
- ²⁴*Sel'skaya zhizn'*, 1/4/91.
- ²⁵*Sel'skaya zhizn'*, 3/27/90.
- ²⁶*Rabochaya tribuna*, 7/20/90.
- ²⁷*Sel'skaya zhizn'*, 1/22/91, p. 1, translated in FBIS-SOV-2-7-91, p. 52-54.
- ²⁸*PlanEcon Report*, Nos. 11-12 (1991), p. 2.
- ²⁹Ann Hillberg Seitzinger and Philip L. Paarlberg, *A Survey of Theoretical and Empirical Literature Related to Export Assistance*, Staff Report AGES 89-34, U.S. Dept. Agr., Econ. Res. Serv., 1989; Keith Crane and Daniel F. Kohler, "Removing Export-Credit Subsidies to the Soviet Bloc: Who Gets Hurt and by How Much," *Journal of Comparative Economics*, No. 9 (1985), pp. 371-390.
- ³⁰*Neftyanoye khozyaistvo*, No. 10 (1990), pp. 32-39, translated in JPRS-UEA-90-45, 12/19/90, pp. 46-52.
- ³¹*Commerzant*, 12/24/90, p. 9.
- ³²*Pravda*, 11/3/90, p. 1, translated in FBIS-SOV-90-216, 11/7/90, p. 54.
- ³³*Commerzant*, 12/24/90, p. 9.
- ³⁴TASS, in English, 0946 GMT, 10/12/90, reported in FBIS-SOV-90-199, 10/15/90, p. 20.
- ³⁵*Izvestiya*, 10/26/90, p. 1.
- ³⁶*Commerzant*, 1/28/91, p. 11.
- ³⁷Moscow Central Television First Program, 1552 GMT, 4/3/91, translated in FBIS-SOV-91-065, 4/4/91, p. 20.
- ³⁸Daniel H. Pick and Timothy A. Park, "The Competitive Structure of U.S. Agricultural Exports," *Amer. J. Agr. Econ.*, Feb. (1991), pp. 133-141.
- ³⁹"Khlebnnyy rynek derzhavy", *Sel'skaya zhizn'*, 12/14/90.
- ⁴⁰"Khlebnnyy rynek derzhavy", *Sel'skaya zhizn'*, 12/14/90.
- ⁴¹For more detail on this program see, "Convertible Rubles for Wheat", *USSR Agriculture and Trade Report*, Economic Research Service/USDA, RS-90-1, May 1990, p. 35.
- ⁴²*Sel'skaya zhizn'*, 10/19/90, p. 1, translated in FBIS-SOV-204, pp. 82-83.
- ⁴³"Khlebnnyy rynek derzhavy", *Sel'skaya zhizn'*, 12/14/90.
- ⁴⁴*Vestnik statistiki*, No. 8 (1990), pp. 39-40.
- ⁴⁵These figures reflect very little value added in processing and marketing.
- ⁴⁶*State Statistical Committee Press Release*, No. 1, 1/4/91.
- ⁴⁷*State Statistical Committee Press Release*, No. 420, 11/20/90.
- ⁴⁸*Torgovlya SSSR*, Moscow, Goskomstat (1989), pp. 24-25.
- ⁴⁹*Izvestiya*, 12/8/90, Union edition, p. 1, translated in FBIS-SOV-90-238, 12/11/90, pp. 47-48.
- ⁵⁰*Ekonomika i zhizn'*, No. 45 (1990).
- ⁵¹The USSR First Deputy Minister for Foreign Economic Relations, Moscow in Spanish to Cuba, 0130 GMT, 2/17/91, translated in FBIS-SOV-91-036, 2/22/91, p. 38.
- ⁵²APK: *Ekonomika, upravlenie*, No. 11 (1990).
- ⁵³MDS, 1200 GMT, 11/5/90, translated in SWB, SU/W0153, 11/9/90, p. A-10.
- ⁵⁴*Zemlya i lyudi*, No. 37 (1990).
- ⁵⁵*Ekonomika i zhizn'*, No. 18 (1991), p. 11.
- ⁵⁶*Commerzant*, 1/28/91, p. 11.
- ⁵⁷*Kommunist Tadzhikistana*, 11/1/90.
- ⁵⁸*Nezavisimaya gazeta*, 12/28/90.
- ⁵⁹*Pravda vostoka*, 12/11/90.
- ⁶⁰*Pravda vostoka*, 9/9/90.
- ⁶¹*Pravda vostoka*, 10/23/90.
- ⁶²*Pravda vostoka*, 10/23/90.
- ⁶³The Soviet figure is in carcass weight, but with slaughter fat and offals removed.
- ⁶⁴For a discussion of general problems in Soviet consumer markets through 1989, see Gertrude E. Schroeder, "'Crisis' in the Consumer Sector: A Comment," *Soviet Economy*, Vol. 6, No. 1 (1990), pp. 56-64.
- ⁶⁵Cook calculates that the profit tax rate for Soviet enterprises fell from 64 percent in 1985 to 40 percent in 1990. See Edward C. Cook, "How Fiscal Policy Fueled Inflation in the USSR," *CPE Agriculture Report*, Vol. IV, No. 1 (January/February 1991), p. 13.
- ⁶⁶*Narodnoe khozyaistvo, SSSR* (1989), p. 76 and *Ekonomika i zhizn'*, No. 5 (1991).
- ⁶⁷*CIA Handbook of Economic Statistics* (1989), p. 66 and *Ekonomika i zhizn'*, No. 5 (1991).
- ⁶⁸*Narodnoe khozyaistvo SSSR* (1989), p. 127.

⁶⁹In a paper soon to be a Staff Report of the Economic Research Service of USDA, we have estimated excess demand for meat in the USSR during 1980-89. Excess demand in 1989 is calculated to be 5.8 million tons, such that 78 percent of total demand for meat was satisfied by purchase. For preliminary estimates for 1980-87, see William M. Liefert, "Estimates of Excess Demand in Soviet Meat and Grain Markets," *CPE Agriculture Report*, Vol. II, No. 4 (1989), pp. 19-23.

⁷⁰One should distinguish between income people wish to save, and that which becomes excess purchasing power because people are unable to find goods that they want to buy at existing prices. The figures mentioned apparently concern attempts to measure the latter. Since in the USSR excess purchasing power can only be stored in the form of money (currency and bank deposits), as opposed to other possible types of wealth, the excess is identified as a "monetary overhang."

⁷¹*Ekonomika i zhizn'*, No. 5 (1991).

⁷²*Sel'skaya zhizn'*, 1/29/91, p. 1.

⁷³*Pravitel'stvennyy vestnik*, 12/90, p. 1.

⁷⁴Moscow TASS in English 1811 GMT, 1/25/91. Individuals will apparently be compensated for an amount equal to their average monthly earnings, not to exceed 1,000 rubles.

Compensation for any excess amount will require proof that the excess was earned legally.

⁷⁵*Trud*, 2/1/91, p. 1.

⁷⁶Computed from data in *Ekonomika i zhizn'*, No. 5 (1990), p. 11.

⁷⁷Discussions with Vladimir Bashmachnikov, March 20, 1990 and *Izvestiya*, February 25, 1991. All the above numbers supposedly exclude land which is merely leased from state and collective farms.

⁷⁸See Kenneth R. Gray, "Individual Farms and Emerging Land Legislation in the Russian Federation," *CPE Agriculture Report*, Vol. 3, No. 6 (1990) and Roy L. Prosterman and Timothy Hanstad, *The Prospects for Individual Peasant Farming in the USSR*, Seattle: Rural Development Institute (1991). In the Baltic countries where collectivization was not completed until 1949-50, there is a preference to return land to old owners or their descendants who will agree to farm it. Extending this right to descendants who now live abroad is an attempt to restore ethnicity and also foreign support for these small nations which have become increasingly Russified since World War II.

⁷⁹K. R. Gray and Y. Markish, "Recent Restrictions on Soviet Cooperatives to Halt 'Speculation'," *CPE Agriculture Report* Vol. II, No. 6 (1989).

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